(Volume 1 -- Report)

FINAL EVALUATION OF THE CHILD SURVIVAL IX PROJECT IN THE CHACO OF BOLIVIA

Submitted to:
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JULY 1997

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LIST OF ABBREVIATIONS

ALRI	Acute Lower Respiratory Tract Infections
ARI	Acute Respiratory Infections
BCG	Bacillus Calmette-Guerin (TB vaccination)
CA1	Committee for Analysis of Information
CHW	Community Health Worker
c s	Child Survival
DDC	DiarrheaI Disease Control
DIP	Detailed Implementation Plan
DPT	Diphtheria Pertussis Tetanus
EPI	Expanded Program in Immunizations
HCW	Health Care Worker
MOH	Ministry of Health
MTE	Mid-term Evaluation
NGO	Non-governmental Organization
OPV	Oral Polio Vaccine
ORS	Oral Rehydration Salts
ORT	Oral Rehydration Therapy
PHC	Primary Health Care
TBA	Traditional Birth Attendant
TT2	Tetanus Toxoid, 2 Doses

EXECUTIVE SUMMARY

Esperança has been active in the Chaco area of Bolivia in child survival activities since an original USAID Child Survival II Grant began in August of 1986. A follow-on Child Survival V Project continued from August of 1989 until July of 1993. This follow-on Child Survival IX Project began in August of 1993 and continued through July of 1996. A one-year extension was granted for a new project area of Entre Rios until July of 1997.

This CS-IX Project is unique in two ways from the previous projects: (1) A totally new geographic area has been selected as the primary focus of child survival activities (Entre Rios). Project activities in the other two districts of Yacuiba and Villa Montes were phased out during the course of this project and ended in July 1996. (2) The strategic focus of this project is in the area of social marketing, based on gaps in knowledge, attitudes and practices identified in the final evaluation of Child Survival V.

This final evaluation offers a unique opportunity to evaluate the impact of continuing child survival activities over a ten-year period in the older project zones of Yacuiba and Villa Montes, compared with only a four-year period of activities in the new project zone of Entre Rios. In addition, it has allowed us to document the progress made in social marketing strategies, indicating how they've improved program service, and showing what gaps identified in the previous child survival projects have been filled because of these strategies.

This child survival project has achieved the vast majority of its goals and objectives and ranks in the superior category for similar child survival projects. Significant advances have been made in the use of appropriate services for diarrheal disease control and pneumonia, and in the knowledge of mothers about dehydration and knowing the signs of pneumonia. Marked improvements have occurred in the percentage of children who have registered in the growth monitoring program, and who have been weighed in the past six months. Significant advances have also occurred in exclusive breastfeeding for six months and in early lactation just after birth. Two doses of Vitamin A provided to children between the ages of 12-24 months has improved, and rates of malnutrition and inadequate growth have dramatically declined during the life of this project. This is unusual for pure child survival projects without a supplemental feeding program. A marked achievement has occurred in the improvement of the number of women getting two or more pre-natal visits, as well as the number of women having deliveries through trained birth attendants.

More work needs to be done in the area of immunization coverage. The new project area in Entre Rios has shown a drop-off between the first and third doses of DPT and Polio, as well as in completing the full series of childhood immunizations by age 24 months. However, much of the low apparent coverage in the EPI program in the new project area appears to be due to loss of the immunization card. The high percentage of indigenous Amer-Indian people in the new project zone who do not speak Spanish and who are not familiar with the use of the card means that impact surveys based on the existence of the immunization card will show artificially low

coverage rates.

This impressive achievement in project activities is due to several factors:

- 1. The use of social investigation and social marketing techniques has stimulated changes in information, education and communication programs, as well as in the training of health care workers. Project staff have been very flexible in adapting to the results of their social investigations.
- 2. Completion of training and supervisory objectives established for the project in a flexible manner for all levels of health care workers has been successfully linked to project success. In addition, the involvement of trained traditional healers, traditional birth attendants and a small army of village-level health volunteer promoters has expanded coverage to areas without health posts.
- 3. Better organization of services at the health center and health post levels has been critical to ensure that improvements are felt at the point-of-service level.
- 4. Continuity of project staff who have been working in the project for the full lo-year period has allowed institutional learning to continue. In a setting where frequent political changes in the Ministry of Health services are the norms, this means that lessons learned have been translated into positive changes over time.
- 5. The Government of Bolivia has made major investments in rural health services by constructing and equipping health posts, health centers and area hospitals where none existed before; enactment of the Law for Popular Participation that began implementation in July 1996 has put fiscal resources in the hands of local community governments who respond to local needs; the commitment of local communities to make this work now that they have the resources and political clout to make changes; and the commitment of the National Health Service to make this work by assigning personnel time and other resources.
- 6. Sustainability has occurred at the 80-90% level in the older project zones where services have been active for nine and ten years. However, in the new project zone of Entre Rios where service has only been active for four years, sustainability is only at the 5060% level, even though excellent gains have been made in coverage of project services. The experience gained early on in this project has contributed to improved coverage in the new zone, but sustainability in an entirely new area takes many more years than originally envisioned.

Esperança is now expanding into an entirely new project zone of Camargo in an integrated child health project. This is a highland indigenous area with Aymara and Quechuan-speaking Indians in a quite different social and cultural setting than the lowland Indian population of the Chaco. The lessons learned in this program should prove exceedingly valuable as the services expand to this totally new zone. However, the sustainability issues outlined above need to be kept in mind by both project staff and govemment planners. Additional support for 2-3 years of technical assistance to Entre Rios would improve sustainability in this project zone.

I. INTRODUCTION

A. GOALS AND OBJECTIVES OF THE EVALUATION

Esperança has been active in the Chaco area of Bolivia in child survival activities since an original USAID Child Survival II Grant began in August of 1986. A follow-on Child Survival V Project continued from August of 1989, until the final evaluation was completed in July 1993. This follow-on Child Survival IX Project began in August of 1993, and continued through July of 1996. A one-year extension was granted for the new project area of Entre Rios until July 1997. Project activities ceased in the older project areas of Yacuiba and Villa Montes at that time. A final survey of impact of child survival activities in those districts was completed in late 1996. Because Entre Rios continued to have activities until July of 1997, that final survey was completed in May/June of 1997. This evaluation took place during the week of July 20-26, 1997.

The Child Survival IX Project is unique in two ways from the previous projects:

(1) A totally new geographic area has been selected as the primary focus of child survival activities. Project activities in the other two districts were phased out during the course of this project and ended in July 1996.

(2) The strategic focus of this project is in the area of social marketing based on gaps in knowledge, attitudes and practices identified in the final evaluation of CS-V that was completed in July 1993.

This final evaluation offers a unique opportunity to evaluate the impact of continuing child survival activities over a ten-year period in older project zones, compared with a four-year period in a new project zone. In addition, it allows us to document the progress made in social marketing strategies, how they have improved program services, and what gaps identified in the previous child survival projects have been filled because of it.

The overall goal of this final evaluation is to assess the impact, effectiveness and sustainability of this child survival project. Because the population numbers are relatively small (approximately 100,000 people), it's not possible to focus the impact on changes in morbidity and mortality. The end-of-project population-based health survey in all project zones provides a better measure of impact. This will be supplemented by data through the National Health Information System as needed to fill in some gaps. Thus, the focus of this evaluation is: (1) to document the activities involved in implementation of the current project, (2) to determine to what degree the objectives outlined in the DIP approved by USAID in 1994 have been achieved by end-of-project, and (3) to assess the impact of the project on the quality of health services provided.

The mid-term evaluation was completed in May of 1995 by Dr. Fred Hartman, this evaluation team leader. That evaluation offered some opportunity for mid-course corrections in

some key project areas. The reader is referred to that for more information regarding project status in 1995. The DIP end-of-project status will be the basis of this evaluation.

B. EVALUATION TEAM

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C. ACTIVITIES COMPLETED

Prior to arrival in Tarija, Dr. Hartman reviewed all pertinent project documents including previous evaluations, the original CS-IX proposal and the DIP approved in 1994. Since Dr. Hartman had participated in the MTE in 1995, as well as in the previous final evaluation of CS-V in July 1993, this afforded a unique opportunity for this evaluator to follow progress over time. Dr. Hartman also held numerous conversations over the period January through June 1997 with Chuck Post, the Executive Director of Esperança, and Kurt Henne, the former Director of the

Child Survival Project in the Chaco and, at that time, acting as the Program Director for Esperanca. Both are based in Esperança/Phoenix headquarters.

A graduate student of Dr. Hartman's in the MPH program at Tufts University School of Medicine in Boston, Massachusetts, was contracted to go to Bolivia a month ahead of time to assist in the data collection and analysis. Ms. Troy has had seven years' experience as an epidemiologist working in data collection, evaluation and publication of results in a number of large-scale epidemiological studies being run by the Harvard School of Public Health. Thus, she was qualified to assist in the survey phase of this evaluation.

The evaluation team assembled in Tarija on Sunday, July 20, 1997. All the members of the evaluation team are identified in the section above, as requested in the USAID outline for CS-IX evaluations. All day Monday, July 21, was spent reviewing the data collected through the final Johns Hopkins-designed rapid survey technique in all project zones. At the end of the day, the entire evaluation team traveled to Entre Rios, the focus of the last year of project activities. This was a four-hour drive by rather difficult dirt roads outside the capital. The team stayed there through the next day and visited the district hospital, one area hospital, three health centers and a health post. They had the opportunity to interview personnel working at all levels of the health system, as well as community leaders in each of these areas. The evaluation team then returned to Tarija for de-briefing on the trip to Entre Rios, and then traveled to Camargo. Camargo is a new project area where Esperança is starting an integrated child health and reproductive health program. Located to the north of Tarija (Entre Rios is to the south), this represents a totally different geographic zone for the extension of child survival services. The Chaco is a lowland jungle area with a number of indigenous lowland Indian tribes. Camargo encompasses an area that extends from 8,500 to 12,000 feet and is inhabited principally by Quechuan-speaking highland Indians. The evaluation team wanted to assess how well the lessons learned in the lowland child survival project could be translated into action in the highlands. This visit also provided an opportunity to observe baseline conditions without any specific child survival interventions. The methodology for our assessment in Camargo was the same as in Entre Rios. The district hospital, health centers and health posts were visited, and interviews were held with selected health staff, as well as with community leaders. The team returned from Camargo on Thursday, July 24; the afternoon of that day was spent in de-briefing and analysis of the results of both the survey and the site visits/interviews. On Friday, the 25th, the entire evaluation team traveled to Santa Cruz, which was the former site of the Esperanca headquarters, but now is the site of the counterpart of the matching grant public health training program (Nur University). A de-briefing was held with the entire Esperanca staff and the Nur University staff to get feedback as to how much the public

health management training meets the needs of the region by improving the efficiency and effectiveness of public health services. Dr. Hartman then returned to the U.S. on Saturday, July 26, 1997. Ms. Troy stayed for two additional weeks to do furhter data anaylsis on the results of the surveys. Below is a list of all sites visited and interviews held.

SITE VISITS AND INTERVIEWS

Portre Rios. Entre Rios

Health center and area hospital with 8 beds. Interviews with MD/Director, 2 RNs, 1 nurse auxiliary and 1 TBA trained by the project who works in close association with the hospital.

Naurenda Health Center

A Guarani Indian village. The nurse auxiliary was the health promoter in the village prior to being trained as a nurse auxiliary, paid for by the village. Interviewed the village chieftain, who also drove the motorcycle to transport the nurse auxiliary to five neighboring villages on a weekly rotation. A house visit to a family infected with varicella, including grandmother, daughter and grandchild in conjunction with Dra. Friar, the District Health Officer, Entre Rios, and the nurse auxiliary.

District Hospital and District Health Office, Entre Rios

Interview with the District Health Officer who participated in the evaluation, the district health nurse responsible for supervision of all nurse auxiliaries, district health pharmacist responsible for the supply of essential medicines, and a public health nurse doing well child checks and growth monitoring.

Narbaez Health Center

Interview with nurse auxiliary and a woman who was there for services.

Esperanca Headauarters Staff, Camargo

In both reproductive health and integrated child health projects funded by the USAID Mission through PROCOSI.

Chinimayo Health Center

Located at > 10,000 feet, this is a Quechuan community with two nurse auxiliaries, a husband/wife team who are also Quechuan.

Palacio Tambo Health Post

Located at 10,000 feet, this post is only two months old and was constructed and equipped by the community. It has a full-time promoter and a part-time MD (2 weeks/month) who were interviewed. Some patients waiting for ser-

vices were interviewed and were very enthusiastic about these new services. This covers approximately 5200 people.

Health Post Oceri

Located at 10,000 feet, serves a population of 5500 and has a husband/wife team of nurse auxiliaries who were interviewed.

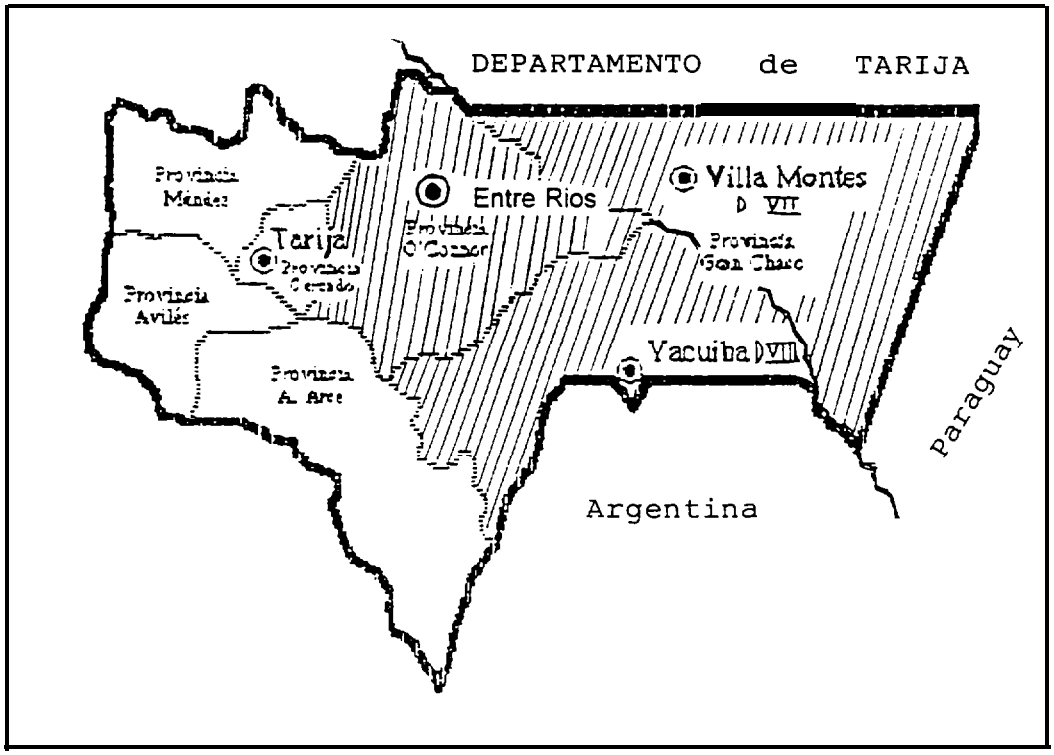
II. BACKGROUND

A. BOLIVIA AND THE CHACO

Bolivia is an incredibly beautiful and diverse land-locked country which ranges from high plains at approximately 13,000 feet around La Paz, extending upwards to mountains ranging to 24,000 feet in altitude. The eastern slope then cascades precipitously down into the "Oriente" in the eastern section of Bolivia, part of which becomes the Chaco.

The geographically-isolated area of the Chaco represents a forgotten part of Bolivia. Figure II-1 is a map which shows the geographical relationships of the project in the Chaco. This area is a frontier area more closely linked to Argentina and Paraguay than it is to the rest of the country. Transportation is difficult, and it frequently takes a day to get in or out of the project area from Santa Cruz. There are flights from Santa Cruz to Tarija three times a week.

FIGURE II-1



The Chaco is essentially a desert, with temperatures ranging over 110 degrees daily during the dry season. However, in the winter, it can be quite cold and even below freezing for days at a time. Over the last number of years, there's been a general drought, which has severely affected agriculture in the area. A number of indigenous Indian populations live in this area and are a very important part of the target population of the child survival project. Both Mataco and Guarani Indian villages are serviced through project activities. The main capital city of the Chaco area is Tarija, and the headquarters for the child survival project is located there. Tarija is linked to the district capitals of Villa Montes, Yacuiba and Entre Rios by dirt roads which frequently are impassable in the rainy season. In the rural areas of each district, roads are improvised, in very poor condition, and are often interrupted by flooding. Many of the rural communities are accessible only on foot or on horseback. The new project zone, Entre Rios, extends into the foothills of the Andes with lushly-forested, rugged, mountainous terrain.

Given the geographical isolation and harsh environmental conditions, it is not surprising that the infant mortality rate for this region at project start-up in 1986 was approximately 106 per thousand. The main causes of death remain diarrhea, trauma, acute respiratory infections (ARI) and febrile illness. Malaria is highly endemic in the Chaco area. However, the prolonged drought has decreased the prevalence of malaria. The prevalence of goiter is quite variable, but has ranged upwards of 20-50% in rural areas. Recent estimates of infant mortality place it at 85 per thousand, in rural areas, indicating some progress over the last nine years. Nonetheless, given the geographic dispersion and difficulties in transportation, there are pockets where the infant mortality will be considerably higher than average.

Esperança began working in the Villa Montes district of the Chaco in 1986 and expanded activities into Yacuiba in 1990. The new area of Entre Rios, in the province of O'Connor, was added at the initiation of CS-IX activities in 1993.

B. EXISTING HEALTEI SYSTEM

The national health system is hierarchial in the traditional Latin model. The central level of the National Secretary of Health (Secretaria National de Salud) sets the norms for each program area throughout the country. The country is divided into states called "Departments," and at this level, the Regional Secretary of Health (Secretaria Regional de Salud) is located in each of the capital cities of the department. Each department is divided into a number of districts, and each district has a District Health Officer. As stated above, the project works in three districts that encompass the Chaco: Villa Montes, Yacuiba and Entre Rios. The districts are sub-divided with each level having the following infrastructure:

- District level - this includes the district hospital, with primary health care specialists in pediatrics, gynecology, internal medicine and general surgery. There are three hospitals in the project zone, but only Yacuiba has specialists. Villa Montes has general medical physicians who can provide caesarean sections. Entre Rios has a much smaller district hospital that has electricity only during the day and cannot provide any advanced obstetrical services, including caesarean sections.

- Areas - these are intermediate levels with micro-hospitals that usually have a physician, nurse and an auxiliary nurse. The physician and the nurse are usually completing their obligatory year of rural service and rotate each year. Many regions that would be areas have no micro-hospitals at all. Yacuiba has five and the new area of Entre Rios has one.

- Sectors - this is the most basic level with a health post and auxiliary nurse paid by the MOH. There are many rural parts of the districts, especially in Villa Montes and Entre Rios, that have no health post at all and only scattered populations. There are 17 health posts in the old project areas, and 10 in the new project area, all of which are staffed.

- Communities - this is the most basic level that involves volunteer community health workers (CHWs). These include health promoters, local "curanderos" or traditional healers, traditional birth attendants, and school teachers. Currently, there are 202 volunteer health workers actively providing services; 106 in the old zone, and 96 in the new zone. The community health workers are trained to provide health promotion in such activities as EPI and maternal child health, and to provide simple treatment, such as oral rehydration, basic first aid and, sometimes, treatment of ARI. The promoters trained as oral rehydrators are designated as an oral rehydration unit (URO). This level of service is usually found in communities of less than 500 people.

It's worth stating that the MOH presence in the Chaco was completely undeveloped at the start-up of the first child survival project in 1986. Two district hospitals were present in Villa Montes and Yacuiba, and a much smaller hospital in Entre Rios. However, there was very little infrastructure beyond the district hospitals to serve the multiple isolated rural communities of the region. The initial child survival grant in 1986 allowed Esperança to assist the MOH to establish 33 health posts in the zones of Machareti, Villa Montes and Yacuiba. In 1988, project activities were withdrawn from Machareti, and the focus shifted south into Villa Montes and Yacuiba. Villa Montes remained the focus of much of the CS-V project activities until the MTE in November 1991. Since then, project resources and efforts were shifted to Yacuiba as the project gradually disengaged from Villa Montes. In 1993, project activities began in the new zone of Entre Rios. Entre Rios already had 11 functional health posts with auxiliaries in place. Therefore, this new project could focus on development and expansion of child survival activities and not spend as

many resources to develop the infrastructure. In addition, since 1993, the government has embarked on an aggressive program of building new health posts and a new area hospital in Entre Rios through the Fund for Social Investment.

C. ESPERANÇA CHILD SURVIVAL PROJECT DESCRIPTION

1. ***The Organization***. Esperanca, Inc. is a non-profit organization with headquarters in Phoenix, Arizona, that has the overall mission statement to alleviate human suffering by improving the health and nutritional conditions of low-income families throughout the world. Esperanca has extensive experience in delivery of primary health care programs in Third World countries, beginning with their initial program in the Central Amazon Basin of Brazil in 1970. Esperanca expanded its program from Brazil to the Chaco in 1983; and then from there, to other countries, including Guinea-Bissau, Mozambique, St. Lucia, Mexico, Honduras and Peru.

2. ***Project Summary***. Child survival activities in the Chaco for Esperanca began in 1986, with a program in Machareti. This gradually moved farther south to the district of Villa Montes, and then Yacuiba. In 1993, new project activities were started in Entre Rios. The thrust of the initial child survival project was to develop a network of health posts with trained auxiliaries in place to provide the child survival activities in Machareti, Villa Montes and Yacuiba. The end-of-project evaluation in July 1993 showed that extensive successes were achieved in improving delivery of health services and the overall health status of the population. Nonetheless, the evaluation also identified some gaps, especially in the knowledge, attitudes and practices related to some common child survival activities, such as oral rehydration therapy (ORT) and pre-natal care.

The decision to maintain child survival project activities in existing areas of Villa Montes and Yacuiba was made for several important reasons. The district and regional Secretary of Health offices requested that Esperanca continue working in these areas. Despite the excellent progress towards the achievement of child survival objectives in these areas, the evaluation showed that child survival educational activities with mothers were deficient. Thus, this new CS-IX project stresses communication sciences, social marketing and health education to improve this aspect of the program in the older project zones. Epidemiological surveillance and maternal health were not adequately addressed in the previous project. Acute lower respiratory tract infections (ALRI) was included as an incidental program in CS-V and was not given sufficient emphasis. It is given strong emphasis in CS-IX.

The district of Entre Rios was chosen as a new area for several important reasons. Most importantly, the regional Secretary of Health requested that Esperanca work there. Entre Rios is

in the same department as Villa Montes and Yacuiba; thus, this would facilitate coordination with the Secretary of Health in Tarija. Despite the fact that the Entre Rios area has 11 functional health posts with trained auxiliaries and a number of trained community health promoters, child survival interventions in that area have poor coverage rates, and Esperanca was requested to assist in improving this. Thus, the new project area will attempt to replicate the successes achieved in improved coverage of child survival activities in the older zones, as well as incorporating aspects of the new communication strategies, the emphasis on pre-natal care, and improved treatment of ALRI. Underlying all of this will be an improvement in epidemiological surveillance to allow rapid assessment of program activities.

In the original proposal, Esperanca offered the following activities to improve child survival in the project area:

- In EPI, improvement of the epidemiological surveillance system by training both district personnel and community health workers in supervision and education, thereby ensuring better coverage and control of diseases preventable by immunizations.
- For the control of pneumonia, district personnel and community health workers will be trained to recognize danger signs of ALRI and provide prompt effective treatment, as well as to develop a supervision and evaluation system.
- For the control of diarrheal diseases, the project will improve dietary management and treatment of dehydration at home and in health facilities by community health workers and auxiliary personnel.
- In the area of maternal health, the project intends to increase the ability to identify high-risk pregnancies and improve their management. Iron supplementation will be promoted, and the percentage of deliveries by trained personnel will be increased.
- Nutrition will be improved by increasing coverage and practice of growth monitoring, promotion of exclusive breastfeeding by training community health workers and district health personnel to provide more effective promotion and support, complemented by better community education. Vitamin A consumption will be increased through supplementation and cooperating with community garden projects funded through other sources.
- For cholera, epidemiologic surveillance and prompt referral and treatment will be improved through training community health workers and district personnel and through community education.
- In all of the above child survival areas, Esperanca will develop health education messages and activities through the use of current communication science, including social marketing, in order to increase the participation of mothers and other community personnel in control measures.

It is estimated that approximately 40,000 children under five and women of child-bearing age will directly benefit from the project. Total population coverage in the three districts is now 102,000.

3. *Goals and Objectives*.

(a) ***Project Goals.*** The overall goal of the project is to improve the health of women of child-bearing age and children under 24 months of age in the proposed project areas by strengthening the ability of the local MOH counterpart to deliver basic primary health care interventions.

(b) ***Objectives***.

(1) **Immunizations**

- 80% coverage of polio 3, DPT3, measles and BCG among children 12-23 months of age by end-of-project, and 60% coverage of TT2 among women of child-bearing age in all three project districts

- 80% of suspected cases of neonatal tetanus, measles and polio are reported regularly from health posts, and 90% follow-up of suspected cases, including case investigations and appropriate action

(2) ORT

- 70% of episodes of diarrhea will be treated with approved ORT (ORS or cereal-based ORT) services

- In 70% of episodes, mothers will report an increase in the amount of liquids given, continue to feed during diarrhea or continue breastfeeding

- 50% of mothers will identify at least one sign of dehydration

(3) Cholera Surveillance

- 80% of sentinel posts report regularly regarding polio, neonatal tetanus, measles and cholera

- 90% of suspected cases investigated and appropriate action taken by trained health care workers

(4) ALRI

- 80% of cases of pneumonia treated appropriately with antibiotics by trained personnel

- 50% of mothers recognize rapid breathing and/or indrawing as a danger sign of pneumonia

(5) Nutrition/Growth Monitoring/Breastfeeding

- 70% of children 12-24 months weighed in the previous four months

- 90% of children 12-24 months enrolled in the program

- 30% of mothers report exclusive breastfeeding during first four months

- 50% of mothers initiate breastfeeding within 8 hours
- 90% of mothers prolong breastfeeding until 13 months
- 90 % of mothers have introduced a complete pattern of supplementary foods by 9- 11 months

(6) Maternal Health/Birth Spacing

- Increase deliveries attended by trained personnel to 70% of total deliveries
- 80% of women delivering had at least one pre-natal visit
- 50% of pregnancies start pre-natal care before the fifth month
- 60% of pregnancies have two or more pre-natal visits

(7) Vitamin A

- 80% of children 12-24 months have received two doses of a Vitamin A supplement
- 80% of mothers can name at least one food rich in Vitamin A

Some of these objectives were modified after the mid-term evaluation. In addition, each one of these technical areas had specific objectives established for the number and type of people to be trained as well as the number of supervision visits that will be done.

(c) *Project* Outputs.

(1) Social marketing and communication of CS education messages. Educational messages and activities will be developed, tested and implemented by health workers following specific training in communication science and social marketing techniques. The target audience will be mothers of children under two years of age.

(2) Training of district personnel. nurse auxiliaries and community health workers in planning, imnlementation. supervision and evaluation of CS activities through workshops and on-the-iob training. In the existing zones, these training activities will focus on epidemiologic surveillance, ALRI, cholera and maternal health. In the new area of Entre Rios, this will include expanded program in immunizations, control of diarrheal diseases, ARI and nutrition monitoring. Maternal health, Vitamin A and cholera will appear in the second year, and epidemiologic surveillance in the third year.

Specific objectives and outputs per year for each project area are outlined in the DIP. These are presented as Appendix II-l. The reader is referred to these for reference in Section III *(Project Accomplishments).*

4. *Project Strategies*.

(a) *Current CS Activities.*

(1) **EPI**. Four rural and three urban vaccination campaigns are held each year. There is continuing vaccination in all district hospitals and the Social Security Clinic in Yacuiba, and in

those health posts that have functional refrigerators, either through electricity or propane refrigerators. Sentinel posts report in through the epidemiologic surveillance program, and these include all health posts, hospitals and Social Security Clinics. They are required to report all suspect cases of polio, measles and neonatal tetanus; and district health office personnel are required to go out to inspect each case. There is, however, poor case recognition. Esperança staff report that a recent case of paralytic polio produced complete confusion as to how to proceed to investigate the case. Since Latin America has been declared polio free since 1994, this caused consternation within the Secretary of Health. With the arrival of Central Secretary of Health epidemiologists, this was classified as a case of Guillain-Barre.

(2) **Diarrheal Disease.** Treatment of diarrheal disease and dehydration occurs in all rural health posts, district hospitals and home ORT units in the homes of all health promoters. There are some mass media campaigns through television spots and radio programs. Training is provided in cholera surveillance; social marketing efforts increase during cholera outbreaks.

(3) Nutrition. The MOH norm is to hold weighing sessions every two months in rural health posts and through dispersed rural health promoters. In urban areas of Villa Montes, Yacuiba and Entre Rios, the project works through mother's clubs and health promoters. District hospitals weigh daily through well child visits. There is an emphasis on identification and follow-up of high-risk children with specially-designed interventions, including more frequent weighing, treatment of concurrent illnesses and nutritional supplementation. Education to mothers on appropriate weaning foods occurs through community health workers, mother's clubs, weighing sessions, well child visits and through the Esperança Radio Program. Reinforcing breastfeeding messages are provided through the mass media.

(4) **Vitamin A.** The objective is to supplement Vitamin A capsules two times per year for children aged two to five via promoters, rural health posts and mother's clubs. Vitamin A messages are provided through the Radio Program and a community garden project stresses growing Vitamin A-rich foods in home gardens.

(5) **Maternal Health.** Pre-natal care is offered in urban areas by district hospitals and by auxiliary nurses in rural areas. They are asked to seek out pregnant women and do frequent home visits in the afternoon to provide pre-natal care. There's a program underway to train traditional birth attendants (TBAs), so that all people in rural areas who cannot get to a health post or hospital have deliveries provided by trained personnel.

(6) **ARI**. Antibiotics are available in all health posts and hospitals for treatment of suspected cases of pneumonia. This program uses the World Health Organization/Pan American Health Organization (WHO/PAHO) guidelines for treatment. Promoters in dispersed rural areas

also have antibiotics and have been trained in the protocols for light, moderate and severe ARI. Radio programs stress early recognition of ARI and encourage mothers to take their children to health posts early for evaluation and treatment.

(b) *New Approaches in Existing Project Areas.* The CS-II project focused on training mid-level personnel, especially auxiliary nurses, for health posts in the Chaco Districts of Villa Montes and Yacuiba, and on the development of the capacity for planning, supervision, support and evaluation of child survival activities by district personnel. CS-V focused on training to support community-level workers, especially volunteer health promoters and mother's clubs, and developing the capacity of district personnel to support them. Evaluation of these projects have shown tremendous improvement in coverage of child survival programs, especially those involving direct actions of the health care systems, such as immunizations, pre-natal care, ORT coverage and growth monitoring. Evaluations also showed excellent progress towards sustainability as district personnel have assumed increasing responsibility for management and oversight of the system. However, these same evaluations show that the weakest area of the project was in the learning of key child survival messages by mothers. In addition, the previous child survival projects did not include activities in epidemiologic surveillance or cholera, only lightly touched on ALRI, and did not specifically stress maternal care.

CS-IX proposes a number of new activities. These include filling in the "missing components" of the previous projects in the area of better health education through the use of social marketing and communication of key messages to mothers. The project proposes to do this through the development and testing of messages identifying barriers to adoption of appropriate health behaviors and channeling this information to the Radio Project for development of appropriate messages and broadcasts. The project also intends to develop and implement training modules for health care workers at all levels in communication of key messages to mothers.

A second area of emphasis in the existing project area is to train health care workers in previously-weak programs of epidemiologic surveillance, cholera, ALRI and maternal care.

(c) New Activities in Expansion Areas. Entre Rios is an area that has experience in child survival activities, but these activities have not been as effective, nor has the coverage been as wide, as the project zones of Villa Montes and Yacuiba. Therefore, the project proposes to replicate the experiences of Villa Montes and Yacuiba in the new project area, and also include the expanded programs in social marketing and communication, epidemiologic surveillance, ALRI and maternal care. In order to achieve this, the project proposes the following strategies:

(1) Training community health workers and district personnel in child survival programs in order to extend the outreach of services beyond the district hospital.

(2) Training district personnel in planning, supervision and evaluation of child survival programs.

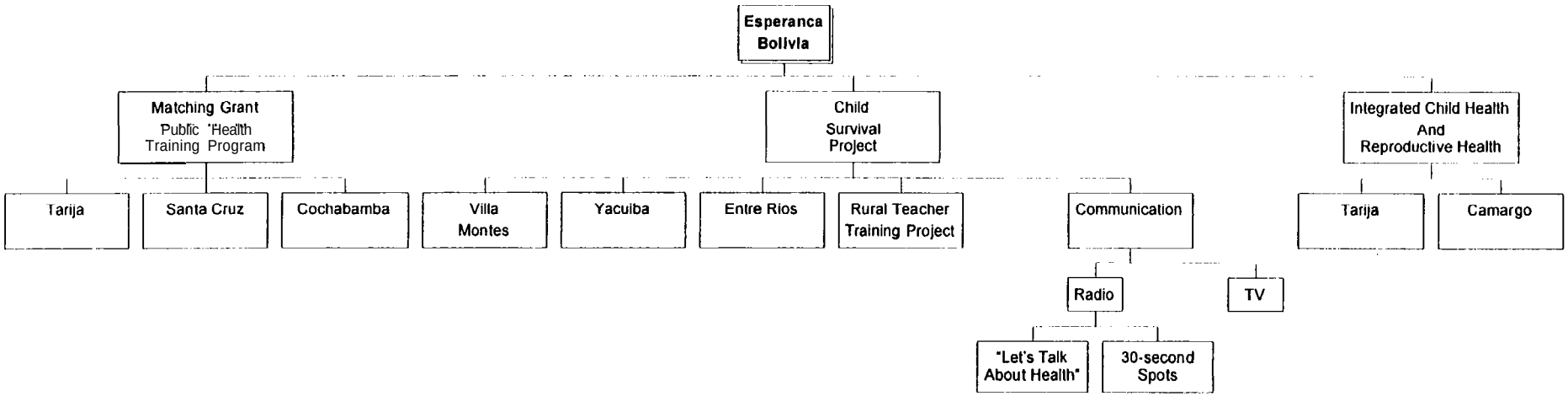
(3) Helping district personnel work with community groups, such as mother's clubs and community health committees wherever they exist.

(4) Extending the impact of child survival interventions by communication of key child survival messages to mothers utilizing the experience gained in the existing project areas.

Figure II-2 (next page) represents the organizational structure of the Esperança program in Bolivia. Each of these is analyzed in detail in the sections that follow.

FIGURE II-2

PROGRAM STRUCTURE IN BOLIVIA



III. PROJECT ACCOMPLISHMENTS AND LESSONS LEARNED

A. PROJECT ACCOMPLISHMENTS

1. ***Introduction.*** Esperança/Bolivia, with the financial assistance of USAID, implemented a child survival program that began in August of 1993 and continued through July of 1997 in the health districts of Yacuiba, Villa Montes and Entre Rios in the department of Tarija. The total beneficiary population is 101,585 inhabitants, of which 15,968 are children less than five years of age, and 24,036 are women of fertile age. Figure 111-l (next page) is a map of the project area, and Figure III-2 (next page) is a table of the population covered during this project period.

Project staff have developed a standard methodology that is applied to each of the program areas. The first step has been an epidemiologic investigation, or a quantitative analysis, of the morbidity, mortality and coverage in each of these priority program areas. Project staff consider the next step the most important one, and involves the qualitative investigation of each priority program within the project. The first task is to identify the groups that would be the subject of the investigation, including community members, health personnel and traditional healers. Each subject of the investigation requires a different approach for each phase of the study. Focus groups and household questionnaires are appropriate for the community. Structured observations are utilized for curanderos and the health personnel; in addition, personal interviews of the health workers have been included. A medical audit was developed for the health system where 60 randomly-selected charts from one quarter of the year are reviewed to see how well the treatments by the physicians, nurses and nurse auxiliaries complied with the norms established for each program by the MOH. After all this data has been collected, there is both a quantitative and qualitative analysis of the results that leads to the design of interventions to improve the utilization of program services in question. These interventions could include re-training programs for physicians, nurses and nurse auxiliaries; mass educational programs for the communities involved in the project area in technical programs such as DDC, maternal health care and ARI; design of print media for distribution at the community, health care and hospital levels; community meetings by health care workers to explain the priority programs and help overcome barriers to utilization of these services; training of CHWs, promoters and local healers; and in some selected cases, house-to-house educational campaigns in which members of the community participate, including voluntary civic groups.

All of these activities combine with the traditional training and supervision activities to produce the results found in the following sections.

FIGURE III-1
PROJECT LOCATION -- STATE OF TARIJA

FIGURE III-2

HEALTH DISTRICT	Total Population	Important Population Groups				
		< 1 year	1 year < 5 years	Women /Fertile Age	Pregnant
VILLA MONTES	19,537	650	586	3,098	4,545	774
YACUIBA	61,722	2,037	1,852	9,789	14,665	2,468
ENTRE RIOS	20,326	648	610	3,081	4,826	813
TOTAL	101,585	3,335	3,048	15,968	24,036	4,055

(a) Diarrheal Disease Control. The impact survey done at the end of CS-V showed that mothers' recognition of the signs of dehydration was low; as a result, they were not using ORT as often as they should. The program decided to place priority emphasis on DDC communication strategies, and their social investigation in this area is the most complete to date in the project. Utilizing a combination of household surveys, focus group studies, structured observations and the medical audit, the initial investigation produced a number of significant results that have produced changes in program strategies and a marked improvement in ORT coverage,

Staff identified 14 different types of diarrhea. Mothers' perceptions of the type of diarrhea profoundly influenced the type of treatment they would use. Mothers tended to use a number of herbal teas or "aguas." The type of tea or agua used varied with their perception of the type of diarrhea. ORT is considered a type of "agua," and this is only used when certain types of diarrhea are diagnosed by the mother. These include diarrheas caused by infection, by intestinal parasites, or where the mother perceives definite signs of dehydration. However, other types of diarrhea will not use ORT at all. These tended to be diarrheas caused by changes in temperature; for example, too hot or too cold, or by bad milk or bad food. In these cases, ORT would not be used. An attempt would be made to warm or cool the child, or breastmilk would be withheld, or the offending food would be removed. Mothers feel this behavior will improve the child's health and no aguas would be needed. At least three of the types of diarrhea required consultation with a curandero. The curanderos tended to use both herbal teas, as well as incantation and prayers, and cost considerably more than a trip to the health services. Yet, for cultural reasons, they were the preferred provider of services for 34% of diarrheas at the end of CS-V. The mother provided the treatment alone in 43% of diarrheas, and the health services in only 23% of diarrheas. Thus, it was clear that educational services had to focus on mothers and curanderos to have any significant impact on coverage of ORT. The initial investigations identified a number of barriers that prevented the mothers from seeking care from the health services early in the course of diarrhea. Sixty percent of the mothers reported fear of being treated badly by health care workers, 20% reported economic difficulties, 15% reported various cultural factors.

A review of 60 clinical cases in hospitals and health centers as a medical audit produced a number of surprising results. Despite nearly six years of intensive efforts on training health care workers in ORT, nearly 80% of the recorded treatments for diarrheal disease within the health system did not follow the norms established by the MOH. It did appear that ORT was extensively used; however, in addition, the heavy use of antibiotics and antidiarrheal medication was recorded. One hundred percent of the medical records reviewed did not include any physical examination of the child showing the degree of dehydration estimated by the examiner. These surprising

results show that the formal medical education for physicians, nurses and nurse auxiliaries did not completely reflect the norms established by the MOH. Frequent personnel turn-over contributes to this. Most of the physicians and nurses who work in the rural health system are serving one year of obligatory social service after graduation from medical school that is required prior to entering their residency program. Although they receive a short training program that stresses MOH norms prior to entering their service, it's clear that biases established during their formal medical training remain the operative factor in their field. This is beyond the project's control and has been brought to the attention of both regional and central authorities for correction.

However, it is possible for the project to focus attention on training of nurse auxiliaries, nurses employed within the system for long periods of time, and even curanderos. The social investigation show that curanderos are willing to learn ORT since it is a common practice for them to stress that children take some form of liquid and food during diarrhea. However, it was noted that the main problem with curanderos is they tend to see the child very late in their illness when there is already an advanced degree of dehydration. This also was a concern expressed by many health care workers and pointed the way to educate mothers to intervene at a much earlier level.

As a result of this investigation, the program embarked on a training program for health care workers within the health care system, community health promoters and curanderos willing to participate in the program. They also developed a marketing plan that included distribution of fliers, house-to-house visits in many communities, training-of-trainers in ORT education, education to food dispensers within communities, education of students in schools, development of radio and TV spots, and an on-going evaluation of the impact of all these interventions and educational efforts. It's interesting to note the stress placed on street food vendors, because they have been shown to be a vector of spread of cholera. During cholera outbreaks the selling of food in the streets is prohibited. Between cholera outbreaks, it's a common practice and a common source of feeding for much of the population.

The results of all these efforts are described below and compared to the objectives established in the DIP.

- *Objective: Training **of** Health Care Workers in DDC.* Figure III-3 (next page) shows the objectives for training of health workers in each project zone. The objectives have been achieved in each zone and over-achieved in Yacuiba and Villa Montes. The qualitative investigation showed they needed to do additional training in the older project zones to reinforce: (1) better management of the clinical history of the patient; (2) individual education of the mother when she comes to the health center; and (3) mobilization of house-to-house education.

FIGURE III-3

ACHIEVEMENTS IN DDC

EVALUATING TO PROCESS INDICATORS (INPUTS-OUTPUTS)

TRAINING OF HEATH WORKERS (DDC)

Goal Yacuiba-VM: 1 workshop on technical norms in DDC for 53 workers: 36 Yacuiba, 17 Villa Montes.
Goal Entre Rios: 3 workshops on technical norms in DDC for 19 workers.

Table DDC-1

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	3	300%	108	90	83%
VILLA MONTES	1	3	300%	51	99	194%
ENTRE RIOS	3	3	100%	57	37	65%

ource: "Health Info. System" Esperanza/Bolivia

The attendance of people in the workshops in Villa Montes surprised the staff and exceeded expectations. The District Health Officer and the Chief of Nursing there supported the program so much that they requested that a number of other personnel attend, including administrators, drivers and other support personnel for the health system so that everybody could mobilize as part of the educational campaign.

• *Objective: Supervision of Health Workers in DDC.* Figure III-4 shows the objectives established for each zone for supervisory visits during the life-of-project. The number of rounds of supervision were increased in Yacuiba and Villa Montes for the same reasons noted above -- the need to reinforce the training and implementation in technical areas of diarrheal disease control and education to mothers. In each round of supervision, they used a supervision guide that was designed in previous child survival projects. A copy of that supervision guide is included as Annex 111-l.

FIGURE III-4

SUPERVISION OF HEALTH WORKERS (DDC)

Goai Yacuiba-VM: 1 round of supervision for 28 workers:
17 Yacuiba, 11 Villa Montes.
Goal Entre Rios: 3 rounds of supervision for 12 workers.

Table DDC-2

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	1	3	300%	51	46	90%
VILLA MONTES	1	3	300%	33	31	94%
ENTRE RIOS	3	3	100%	36	36	100%

Source: "Health Info. System" Esperanza/Bolivia

• *Obiective: Traininn of Volunteer Community Health Promoters in DDC*. Figure III-5 shows the objectives established and the outcomes in each project zone. In all the zones, additional workshops were included for promoters as a result of the social investigation. In Yacuiba and Villa Montes, this was oriented towards the educational themes of signs of dehydration, as well as educating the mother about what to do during diarrhea. In Entre Rios, more emphasis was placed on the use of household liquids and continuing foods during the diarrhea. Because Entre Rios is a new zone, many more community health promoters were trained during this project than in the existing project zones of Yacuiba and Villa Montes.

FIGURE HI-5

TRAINING OF HEALTH PROMOTERS (DDC)

Goal Y acuiba-VM : 1 workshop on diarrhea1 control in the home for 70 promoters: 50 Yacuiba, 20 Villa Montes.

Goal Entre Rios: 2 workshops on diarrheal control in the home for 96 community workers.

Table DDC-3

WOPX ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	19	20	200%	loo	83	83%
VILLA MONTES	1	2	200%	40	50	125%
ENTRE RIOS	12	18	150%	288	274	95%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Smervision of Volunteer Community Health Promoters in DDC.* Figure III-6 shows the objectives established and the outcomes of the supervision provided to community health promoters. The project has achieved a high degree of its objectives in supervision of health promoters. It is also clear that both the training and supervision were adjusted to meet the needs identified during their social investigation phase.

FIGURE III-6

SUPERVISION OF HEALTH PROMOTERS

Goal Yacuiba-VM: 1 round of supervision for 70 promoters:
50 Yacuiba, 20 Villa Montes.
Goal Entre Rios: 3 rounds of supervision for 96 community workers

Table DDC-4

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	1	1	100%	50	42	84%
VILLA MONTES	1	1	100%	20	22	110 %
ENTRE RIOS	3	3	100%	258	252	88%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Training of Traditional Healers in DDC.* Figure III-7 shows the results of training of traditional healers. No specific objectives were outlined in the DIP, but this was added after the social marketing investigation showed that curanderos were a large provider of ORT services. Project staff were surprised that 100% of the curanderos invited attended the workshops. The themes that were stressed during the training were: (1) recognizing the signs of severe dehydration and referral to the health services; (2) the use of household liquids and oral rehydration salts in order to prevent dehydration; and (3) continuing feeding during the diarrhea. The emphasis was placed on the use of household liquids because of the mothers' preference in the Chaco to use herbal teas.

FIGURE III-7

TRAINING OF TRADITIONAL HEALERS YACUIBA-VILLA MONTES

Global goals: Proposed after marketing investigation, not specified in DIP:
Train 2 1 traditional healers: 9 in Villa Montes and 12 in Yacuiba.

Table DDC-5

WORK ZONE	TRAINING SESSIONS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	12	12	100%
VILLA MONTES	1	1	100%	9	9	100%

ource: "Health Info. System" Esperanza/Bolivia

• *Objective: Supervision of Traditional Healers in DDC.* One hundred percent of the trained traditional healers were visited at least once by a staff nurse in the program. They found that the curanderos did experiment somewhat with the use of oral rehydration salts, but in the end, preferred to utilize the traditional herbal teas that the mothers are accustomed to use. The staff also found that the impact on the use of ORT by curanderos was very limited in Yacuiba but quite high in Villa Montes. During the supervision, staff identified that the traditional healers in Yacuiba tend to be Shamans who use incantations and prayers rather than herbal teas. However, those in Villa Montes did show a high degree of participation in the program. The small number of curanderos trained and supervised in the use of ORT did not have a major impact in the overall project area. Nonetheless, it was an interesting experiment to include traditional healers in the formal health system.

FIGURE III-7A

SUPERVISION TRADITIONAL HEALTH WORKERS YACUIBA-VILLA MONTES

General goals: Proposed after marketing investigation, not specified in DIP:
Supervise 19 traditional healers: 12 Villa Montes and 9 Yacuiba.

Table DDC-6

WORK ZONE	SUPERVISIONS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	12	12	100%
VILLA MONTES	1	1	100%	9	9	100%

Source: "Health Info. System" Esperanza/Bolivia

Figure III-8 shows the additional activities that were included in diarrheal disease control as a result of the social marketing investigation. None of these were included as a DIP objective; the only objective was to implement a social marketing investigation and to use the results in program activities. Thus, the results included here are all in addition to the objectives established in the DIP.

FIGURE III-8

ADDITIONAL ACTIVITIES IN DDC (SOCIAL MARKETING)

Project goal: Implement activities according to results of investigation

Table: DDC-7

INTERVENTION	YACUIBA			VILLA MONTES		
	PROGR.	EXEC.	%	PROG.	EXEC.	%
1. Qualitative/ Quantitative invest.	1	1	100%	1	1	100%
2. Education house to house	3300 families	3123 families	95%	2500 families	2614 families	105%
3. Production and broadcasting of radio jingles	6	6	100%	6	6	100%
4. Production and broadcasting of TV spots	3	3	100%	3	3	100%
5. Production of communications guide in DDC	1	1	100%	1	1	100%
6. Radio contest	1	1	100%	1	1	100%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Utilization of Health Services in DDC According to Survev Results.* Figure III-8A shows that the use of appropriate services in oral rehydration centers has climbed significantly during the life-of-project from 52% to 76% in Yacuiba and Villa Montes, and 47% to 58% in Entre Rios. The objective that 70% of mothers who seek help do so from trained personnel was met in the older project zones but not quite met in the newer project zone. More work clearly needs to be done in Entre Rios.

FIGURE III-8A

EVALUATION ACCORDING TO IMPACT INDICATORS PROPOSED OBJECTIVES)

USE OF HEALTH SERVICES IN DDC ACCORDING TO SURVEY

Objective: 70% of mothers seek help in health services and personnel trained in application of protocols in attention in MOH: Hospitals, health posts, doctors and trained community workers

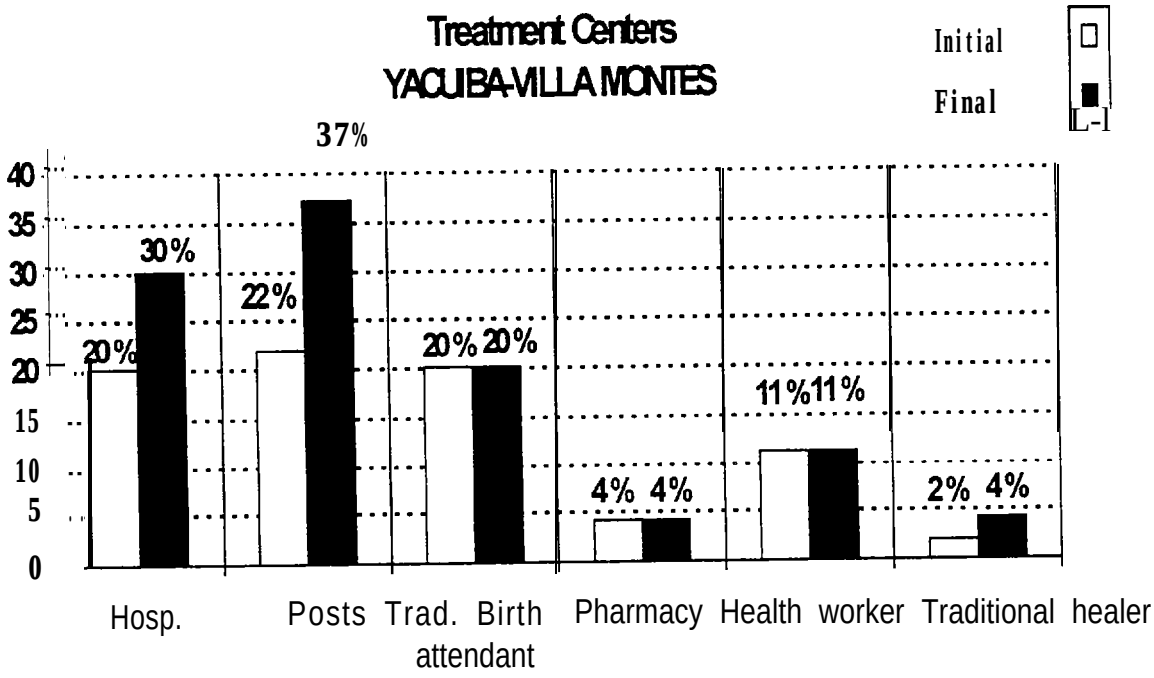
Table DDC-8

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Use of appropriate services	**28**	**52%**	**35**	**76%**	**22**	**47%**	**22**	**58%**
b. Use of inappropriate services	**26**	**48%**	1 1	**24%**	**25**	**53%**	**16**	**42%**
TOTAL	**54**	100%	46	100%	47	100%	38	100%

Source: "Rapid Survey" Esperanza/Bolivia

A final study was done in Yacuiba and Villa Montes of the treatment sources used by mothers who sought assistance for diarrhea, and the biggest rise was in the use of hospitals and health posts. Interestingly, traditional birth attendants are a significant source of oral rehydration advice, and that is included in their training. The traditional healers are a much lower source of ORT services. See Figure III-9

FIGURE III-9



• *Objective: Recognition of the Sims of Dehvdration.* Figure III-10 shows the objective established for this and the results of the initial and final surveys in the project zone. The objective established for this has been exceeded in all project zones, and there has been a four-fold rise in recognition in Yacuiba and Villa Montes, and almost three-fold rise in Entre Rios. Clearly, this has been a very successful component of the project and has resulted from their social marketing investigation.

FIGURE III-10

RECOGNITION OF DEHYDRATION ACCORDING TO SURVEY

Objective: 50% of mothers mention correctly 1 or more signs of dehydration: thirst, sunken eyes, dry skin

Table DDC-9

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a.Recognize(know)	45	15%	194	65%	60	21%	160	51%
b. Don't know	253	85%	106	35%	230	79%	120	43%
TOTAL	298	100%	300	100%	290	100%	280	100%

Source: "Rapid Survey" Esperanza/Bolivia

• *Objective: Use of Some Form of Oral Rehydration Liquid. Continued Feeding and Continued Breastfeeding in DDC.* Figure III-11 shows that the objectives established for oral rehydration fluids and continuing breastfeeding have been met in both project zones. However, continuing feeding during the episode of diarrhea has run into the cultural practice that mothers are opposed to feeding during diarrhea based on the feeling that the intestines should be given a rest. It's been a difficult task to try and stimulate women to change. They have readily accepted the use of home liquids, such as herbal teas and breastfeeding, because they are part of the culture. In the initial survey, many of these figures were already high because of the campaign against cholera which Esperança supported in previous child survival programs.

FIGURE III-11

USE OF ORT (LIQUIDS, FOOD, AND BREAST-FEEDING IN DDC) ACCORDING TO SURVEY

Objective: 70% of mothers using liquids in the last episode of diarrhea
70% of mothers continuing to give food during the episode of diarrhea.
70% of mothers continuing to breast-feed during the episode of diarrhea.

Table DDC-10

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Same or more liquids	59	62%	65	73%	87	66%	67	68%
b. Same or more food	39	41%	43	49%	53	40%	42	43%
c. Same or more breast-feeding	64	81%	59	85%	103	85%	71	83%

Source: "Rapid Survey" Esperanza/Bolivia

(b) *Epidemiologic Surveillance.* The final evaluation of CS-V showed the need to improve epidemiologic surveillance. This has also been emphasized by the periodic outbreaks of cholera in the Chaco that require immediate notification to health authorities to prevent further spread of the disease. In addition, during the life of this project, the Western Hemisphere has been declared polio free. Thus, any case of flaccid paralysis requires immediate and intense investigation to establish whether this is due to transmission of polio virus or due to other factors. Neonatal tetanus and measles are also included in the epidemiologic surveillance system to provide prompt investigation as to why these are occurring and whether or not there's been a breakdown in cold chain or immunization activities.

The original DIP set as the objectives to have one workshop in epidemiologic surveillance for health personnel of the district, one workshop in epidemiologic surveillance for health promoters, one round of supervision for all health care workers in epidemiologic surveillance and four annual meetings for analysis and planning of the data collected through this surveillance system. After initial meetings in this CS-IX project with district health personnel in Villa Montes, Yacuiba and Entre Rios, it was decided to modify the objectives of the DIP because an epidemiologic surveillance system was really not effectively in place. At the first planning and analysis meeting, Esperanca and Secretary of Health officials developed a surveillance system with three levels: (1) a simplified level representing the volunteer health promoters; (2) regular surveillance in all health posts and health centers through the monthly health information system; and (3) specialized sentinel centers in high-risk areas, for example in hot zones for cholera or malaria, that will send in regular reports on specific diseases (including significant negatives).

Accordingly, the appropriate workshops to establish the epidemiologic surveillance system were held in all project zones as outlined in the DIP. In addition, Esperanca, together with the district health offices in all three project zones, developed a committee for analysis of information (CAI) that met on a regular basis, usually quarterly, to review information and adjust project activities. That has now been established as an on-going activity and has far exceeded the four annual meetings for analysis and planning established in the original DIP.

Figure III-12 shows the results of the follow up and notification of the epidemiologic surveillance system -- it's now running at the 90% level in all project zones, which is exceedingly successful, given that it's only been implemented in the last three years.

FIGURE III-12

ACHIEVEMENTS IN EPI ATTENTION

EVALUATION ACCORDING TO IMPACT INDICATORS t-PLANNED OBJECTIVES)

FOLLOW-UP AND NOTIFICATION IN EPI ATTENTION

Objectives: 80 % of notification in cases of neonatal tetanus, sarampion, polio and cholera reported regularly in network of health services
90 % of investigations and follow-up in suspicious cases of neonatal tetanus, sarampion, polio and cholera.

	YACUIRA-VM			ENTRE RIOS		
OPTIONS	PROGR.	EXEC.		PROGR.	EXEC.	
	#	#	%	#	#	%
REGULAR NOTIFI.	900	891	89%	396	373	94%
FOLLOW-UP	*	*	*	*	*	*

Source: "Health Info. System" Esperanza/Bolivia "MOH stats" Villa Montes, Yacuiba and Entre Ríos

Figure III-13 shows the results of the follow up of the suspected cases of cholera, paralysis and measles. No cases of tetanus were reported. One hundred percent of the 91 reported cases of cholera had an immediate follow up, as did one case of flaccid paralysis which was found to be due to Guillain-Barre. However, the child moved out of the project area and the investigation could not be completed; thus the 50% rate is cited. Six cases of measles were followed up as requested.

FIGURE III-13

EPIDEMIOLOGIC SURVEILLANCE
FOLLOW UP OF SUSPECTED CASES

	CHOLERA	TETANUS	POLIO	MEASLES
Cases Notified	91	0	1	6
Cases Investigated	100%		50%	100%

(c) *Acute Respiratory Infections (ARI)*. The ARI program has been based on PAHO/WHO norms and was introduced in the project areas in 1993. Esperança staff attended a TOT program in La Paz and then came back to the zone and trained health care personnel in project areas. Antibiotics have been supplied to all hospitals, health centers and health posts, and to some selected promoters who live in isolated areas where access to health posts is not readily available. There have been radio programs oriented towards educating families about recognition of ARI and the need to seek care. Project staff and MOH officials agreed that treatment of ARI in project areas was still in its infancy at the beginning of this project, and that a lot more needed to be developed.

The initial investigation into AFU program activities followed the same methodology outlined above for DDC and included focus groups, household surveys, structured observations and medical audits of various levels of health care personnel. The results showed that mothers typically identified two types of ARI. One is pneumonia, also known as bronchitis, and "resfrio," which we would generally refer to as a cold. Colds are classified according to their cause, such as changes in temperature (hot or cold), by infection, or even by other aspects such as dust or pollen. Colds can also be classified as being with or without cough, as well as having an inflamed throat or with rhonchi. The social investigation showed that the sources of treatment for ARI depended heavily on the mother's perception of the type of ARI that the child is having. In the resfrio, most of the care occurred either at home or with curanderos. When the mother perceived there was pneumonia, 100% of the children were taken to the health care workers. Nonetheless, the mothers frequently only identified pneumonia as being with a cough, and were not really aware of other signs of pneumonia. Given the high incidence of pneumonia in children under five and the high mortality from this disease, the results of the social investigation clearly showed that a number of cases that are perceived as not being pneumonia and are treated either in the home or by curanderos are most likely pneumonia that could have significant effects on childhood mortality. Health workers report that a significant number of the cases of pneumonia they treat appear very late in the illness, since most of the treatment begins in the home or is provided by curanderos. According to the norms established for ARI program services, the project has chosen to continue recommending treatment for mild URIs in the home, but to focus on educating mothers to recognize the early signs of pneumonia and to get their children to the health care center much earlier in the illness.

As was true with DDC, the results of a medical audit of health care personnel in the treatment of ARI were very surprising. Even in the older project zones of Villa Montes and Yacuiba, the percentage of physicians, nurses and nurse auxiliaries who followed the MOH norms

for treatment were very low. Interestingly enough, the nurse auxiliaries tended to make the correct diagnosis almost twice as frequently as physicians. This showed that the initial round of training of health care personnel that occurred in CS-V did not improve the appropriate treatment of ARl as much as desired. This finding has had significant impact on the design of continuing education programs for health care personnel as well as for the orientation of new personnel. In addition to designing continuing education programs for health personnel, the project has distributed watches to all health posts to ensure that the respiratory rate can be recorded on the chart. Treatment protocols depend a great deal on the respiratory rate, so the accurate counting of it is considered to be a measure of quality.

• *Objective: Training of Health* Care Workers *in ARI*. Figure III-14 shows the objectives established for training in each of the project zones. It's clear these objectives have been achieved.

FIGURE III-14

ACHIEVEMENTS IN ARI

EVALUATION ACCORDING TO PROCESS INDICATORS (INPUTS-OUTPUTS)

TRAINING OF HEALTH WORKERS (ARI)

Goal Yacuiba-VM: 2 workshops on technical norms and communication in cases of ARI for 53 workers: 36 Yacuiba, 17 Villa Montes.
Goal Entre Rios : 3 workshops on technical norms in ARI for 14 workers.

Table ARI-1

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	*2*	*2*	100%	*72*	*72*	100%
VILLA MONTES	*2*	*2*	100%	*34*	*34*	100%
ENTRE RIOS	*3*	*3*	100%	*42*	*42*	100%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Supervision of Health Care Workers in* ARZ. Figure III-15 shows the objectives established for supervision of health care workers and the results achieved. Once again, it's clear these objectives.have been met.

FIGURE **III-15**

SUPERVISION HEALTH WORKERS (ARI)

Goal Yacuiba-VM: 2 rounds of supervision for 28 workers:
17 Yacuiba, 11 Villa Montes.
Goal Entre Rios: 3 rounds of supervision for 14 workers

Table ARI-2

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	2	2	100%	34	31	90%
VILLA MONTES	2	2	100%	22	21	94%
ENTRE RIOS	3	3	100%	42	35	83%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Training of Volunteer Community Health Promoters in ARI*. Figures III-16 and III-17 show the objectives established and results achieved for training of community health promoters in ARI.

FIGURE III-16

TRAINING OF HEALTH PROMOTERS (ARI)

Goal Yacuiba-VM: 1 workshop on signs of pneumonia and treatment of colds for 70 promoters: 50 Yacuiba, 20 Villa Montes.

Goal Entre Rios: 3 workshops on signs of pneumonia and treatment of colds for 80 promoters.

Table ARI-3

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	50	83	166%
VILLA MONTES	1	1	100%	20	19	95%
ENTRE RIOS	3	3	100%	240	235	98%

Source: "Health Info. System" Esperanza/Bolivia

FIGURE KU-17

TRAINING OF ADDITIONAL HEALTH PROMOTERS

Global goal: Train promoters in rural area for management of cotrimoxazol in pneumonia

Table ARI-4

WORK ZONE	PROGRAMMED	EXECUTED	%
VILLA MONTES	3	3	100%
YACUIBA	3	12	400%
ENTRE RIOS	38	48	126%

Source: "Health Info. System" Esperanza/Bolivia

The training of additional health promoters in management of antibiotics was recommended in the mid-term evaluation. The project decided to work together with the Polytechnical Institute for Training of the Campesino located in Yacuiba, and this considerably facilitated implementation of the training of volunteer community health promoters. The high response rate in Yacuiba reflects this. Clearly, this is an "unofficial" program, in that the MOH officially does not recognize community health promoters as a level of care that can handle antibiotics. Nonetheless, the district health office is aware of the program and has given permission to do this training in dispersed rural areas where there are no health posts.

• *Objective: Supervision of Community Health Promoters in* ARZ. Figure III-18 shows the objectives established and the results achieved in supervision of community health promoters in the treatment of ARI. The objectives are by and large achieved except in Entre Rios. A much larger number of health promoters were trained there because it is a new project area. It is also very dispersed, and during the rainy season very difficult to get into a lot of the communities; because of this, many of the supervisions were not completed.

FIGURE III-18

SUPERVISION IN MEETINGS OF HEALTH PROMOTERS (ART)

Goal Yacuiba-VM: 1 round of supervision (meetings) for 70 promoters: 50 Yacuiba, 20 Villa Montes.
Goal Entre Rios: 3 rounds of supervision (meetings) for 80 promoters:

Table ARI-5

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	1	1	100%	83	77	93%
VILLA MONTES	1	1	100%	20	17	85%
ENTRE RIOS	3	3	100%	240	170	71%

Source: "Health Info. System" Esperanza/Bolivia

Figure III-19 shows the results of training of traditional healers in ARI. This was not specified in the DIP, but the social investigation showed that mothers tended to consult traditional healers when they thought the child had "resfrio" and not pneumonia. These are the same traditional healers who were trained before in DDC. The focus of their training is to recognize the signs of pneumonia and refer - not to give any treatment.

FIGURE III-19

TRAINING TRADITIONAL HEALERS

Goals Yacuiba-VM: Proposed after marketing investigation, not specified in DIP:
Train 9 traditional healers in Villa Montes

Table ARM

WORK ZONE	TRAINING SESSIONS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
VILLA MONTES	1	1	100%	**9**	**9**	100%

Source: "Health Info. System" Esperanza/Bolivia

Figure III-20 shows the additional activities that were implemented in the ARI social marketing efforts. No specific objectives were established for these in the DIP. These came about as a result of the initial social marketing investigation. Our visits to the villages documented reports from individual mothers that both the TV and radio spots have saved lives. In other words, mothers have recognized the signs of pneumonia earlier and took their children to the health services earlier. This is reflected in the data on utilization of health services for pneumonia that follows.

FIGURE III-20

ADDITIONAL ACTIVITIES ARI (SOCIAL, MARKETING)

Project goal: Implement activities according to results of investigation

Table ARI-7

INTERVENTION	YACUIBA			VILLA MONTES		
	PROGR.	EXEC.	%	PROG.	EXEC.	%
1. Qualitative/ Quantitative investigation	1	1	100%	1	1	100%
2. Production of educational poster	1	1	100%	1	1	100%
3. Production of educational flyer	1	1	100%	1	1	100%
4. House to house education	3300 families	2960 families	90%	2200 families	2040 families	93%
5. Education of population groups	25 groups	20 groups	80%	19 groups	19 groups	100%
6. Radio contest	1	1	100%	1	1	100%
7. Production and broadcast of radio jingles	1	1	100%	1	1	100%
8. Production and broadcast of TV spots	2	2	100%	2	2	100%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Use of Health Services for Pneumonia*. Figure III-21 shows the objectives established for the use of trained health services in cases of pneumonia by mothers as established by the initial and final impact survey. There has been a significant improvement in the use of trained health services in pneumonia in all project zones. Entre Rios, the newer project zone, lags behind the older ones.

FIGURE III-21

EVALUATION ACCORDING TO IMPACT INDICATORS (PROPOSED OBJECTIVES)

USE OF HEALTH SERVICES FOR PNEUMONIA ACCORDING TO SURVEY

Objective: 80% of mothers seek professional help in cases of pneumonia

Table ARI-8

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Use of appropriate services	49	71%	21	93%	34	64%	15	71%
b. Use of inappropriate services	20	29%	2	7%	19	36%	6	29%
TOTAL	69	100%	23	100%	53	100%	21	100%

Source: "Rapid Survey" Esperanza/Bolivia

• *Objective: Recognition of Sims of Pneumonia bv the Mother.* Figure III-22 shows the percentage of mothers correctly able to mention signs of pneumonia based on the results of the initial and final surveys. There has been a marked rise in the recognition of the signs of pneumonia by mothers, and this objective has been exceeded. Clearly, the social marketing program has significantly improved the use of appropriate services because of earlier recognition of the signs of pneumonia by the mother.

FIGURE III-22

RECOGNITION OF SIGNS OF PNEUMONIA BY SURVEYED MOTHER

Objective: 50% of mothers correctly mention signs of pneumonia

Table ARI-9

OF'TIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Recognize (know)	89	30%	249	83%	78	27%	168	60%
b . Don't know/other	209	70%	51	17%	212	73%	112	40%
TOTAL	298	100%	300	100%	290	100%	280	100%

Source: "Rapid Survey" Esperanza/Bolivia

(d) *Nutrition Services and Growth Monitoring*. In the original design of this project, no special emphasis was placed on this project component, because it had been well addressed in previous child survival programs. Nonetheless, some specific objectives were established for training and supervision of health workers. In addition, the social marketing programs (through mass media and community education efforts) stressed the importance of growth monitoring, as well as proper feeding practices and the use of Vitamin A-rich foods. The project has continued to support the use of community gardens established through mother's clubs that had been an important part of previous projects but no longer receive specific funding. These have been self-sustaining because the mother's clubs continue to function without a lot of project support.

• *Objective: Training of Health Workers in Nutrition and Growth Monitoring*. Figure III-23 shows the objectives established for the project and their achievement by end-of-project status.

FIGURE III-23

ACHIEVEMENTS IN NUTRITION/GROWTH MONITORING
EVALUATION ACCORDING TO PROCESS INDICATORS (INPUTS-OUTPUTS)
TRAININGHEALTH WORKERS

Goal Yacuiba-VM: 2 workshops on: education during weighing, diet for special groups and Vitamin A for 53 workers: 36 Yacuiba, 17 Villa Montes.

Goal Entre Rios: 6 workshops on: education during weighing, diet for special groups and Vitamin A for 14 workers.

Table NUT-l

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI	ACTUAL	%
YACUIBA	**2**	**2**	100%	**72**	**72**	100%
VILLA MONTES	**2**	**2**	100%	**34**	**34**	100%
ENTRE RIOS	**6**	**6**	100%	**84**	**77**	**92%**

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Supervision of Health Workers in Nutrition and Growth Monitoring*. Figure III-24 shows the results of the workshops that were given and the amount of supervision provided. It is clear that both training and supervision have well achieved their goals.

FIGURE III-24

SUPERVISION HEALTH WORKERS

Goal Yacuiba-VM: 1 round of supervision for 28 workers:
17 Yacuiba, 11 Villa Montes.
Goal Entre Rios: 3 rounds of supervision for 12 workers

Table NUT-2

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	1	2	200%	34	31	90%
VILLA MONTES	1	2	200%	22	21	94%
ENTRE RIOS	3	3	100%	36	40	111%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Training of Volunteer Community Health Promoters in Nutrition and Growth Monitoring*. Figure III-25 shows the results of this training. The number of workshops in Entre Rios was less because they had greater participation in the first one. In addition, the decision was made to train additional health promoters in nutrition and growth monitoring in very dispersed areas where no rural auxiliaries could work. There were no objectives established in the DIP for this component.

FIGURE III-25

TRAINING HEALTH PROMOTERS (NUTRITION-GROWTH)

Goal Yacuiba-VM: 1 workshop on diet for 70 promoters:
50 Yacuiba, 20 Villa Montes.
Goal Entre Rios : 2 workshops on growth and diet for 80 promoters

Table NUT-3

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	50	50	100%
VILLA MONTES	1	1	100%	20	20	100%
ENTRE RIOS	2	1	50%	80	97	121%

Source: "Health Info. System" Esperanza/Bolivia

TRAINING ADDITIONAL HEALTH PROMOTERS (NUTR-GROWTH)

General Goal: Train promoters in disperse rural areas to weigh children

Table NUT-4

WORK ZONE	PROGRAMMED	EXECUTED	%
ENTRE RIOS	15	9	60%

Source: "Health Info. System" Esperanza/Bolivia

• *Obiective: Supervision of Volunteer Health Promoters in* Nutrition *and Growth Monitoring*. Figure III-26 shows that the objectives established in this area have been well achieved.

FIGURE III-26

SUPERVISION (IN GROUP) OF HEALTH PROMOTERS (NUTR-GROWTH)

Goal Yacuiba-VM: 1 round of supervision (in group) for 70 promoters: 50 Yacuiba, 20 Villa Montes.
Goal Entre Rios: 1 round of supervision (in group) for 80 promoters:

Table NUT-5

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	1	1	100%	**50**	**50**	100%
VILLA MONTES	1	1	100%	**20**	**20**	100%
ENTRE RIOS	1	1	100%	9	12	133%

Source: "Health Info. System" Esperanza/Bolivia

Figure III-27 shows additional activities in nutrition and growth monitoring that were developed as a result of the social marketing investigation. These interventions were quite extensive and placed emphasis on different feeding patterns at different ages (up to 6 months; 7-8 months; 9 months to one year). The project stressed adding a teaspoon of oil per day to the child's food to increase calories, and developed recipes using local foods for children--for example, using boiled goat's blood as a base. The results that follow show the effectiveness of this campaign.

FIGURE III-27

ADDITIONAL ACTIVITIES NUTRITION-GROWTH (SOCIAL MARKETING)

Project goal: Implement activities according to results of investigation

Table NUT-6

INTERVENTION	YACUIBA			VILLA MONTES		
	PROGR.	EXEC.	%	PROG.	EXEC.	%
1. Qualitative/ Quantitative investigation	1	1	100%	1	1	100%
2. Production of an educational poster	1	1	100%	1	1	100%
3. House to house education	2900 families	2960 families	102%	2200 families	2040 families	93%
4. Educating teachers	80	78	98%	45	43	96%
5. Educating primary students	1650 children	1600 children	97%	630 children	600 children	95%
6. Educating high school students	1300 adolesc .	1400 adolesc .	108%	450 adolesc.	500 adolesc.	111%
7. Production of a communications guide on nutrition	1	1	100%	1	1	100%
8. Production and broadcasting of radio jingles	3	3	100%	3	3	100%
9. Production and broadcasting of TV spots	2	2	100%	2	2	100%

ource: "Health Info. System" Esperanza/Bolivia

• *Objective: 90% of Children 12-24 Months are Enrolled in the Program.* Figure III-28 shows the results of this evaluation through the surveys. Unfortunately in the Chaco, a significant percentage of parents do not maintain their "road to health" card that includes both immunizations and growth monitoring. If you take only the parents that have kept the card into account, the objective has not been achieved. However, if you take into account those that have lost the card but health records show that their children have been enrolled in the program, the apparent improvement has been from 84% to 91% in Yacuiba-Villa Montes, and 77% to 86% in Entre Rios, showing some growth over the project. The impact survey instructions evaluate the ability of the mother to maintain the card as opposed to the actual program activities. This same problem is also seen with the immunization program.

FIGURE III-28

EVALUATION ACCORDING TO IMPACT INDICATORS (PROPOSED OBJECTIVES)

PROGRAM COVERAGE (POSSESSION OF HEALTH I.D. CARD, ACCORDING TO SURVEY)

Objective: 90% of children 12-24 months are enrolled in program

Table NUT-7

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Have I.D. card	222	75%	195	65%	180	62%	203	73%
b. Lost I.D. card	28	9%	76	26%	44	15%	36	13%
c. Doesn't have I.D. card	48	16%	28	9%	66	23%	41	14%
TOTAL	298	100%	299	100%	290	100%	280	100%

Source: "Rapid Survey" Esperanza/Bolivia

• *Objective: 70% of Children 12-24 Months Have Been Weighed in the Previous Four Months.* Figure III-29 shows the results of this evaluation. have grown from 51% to 70% in Yacuiba-Villa Montes, and 28 % to 65% in Entre Rios, a healthy and significant growth in weighing in the past four months. Obviously, the program has paid a lot of attention to this issue by using vaccination campaigns to increase the growth monitoring rates.

FIGURE III-29

WEIGHED IN LAST 4 MONTHS
(HAS HEALTH I.D. CARD, ACCORDING TO SURVEY)

Objective: 70% of children 12-24 months have been weighed in the previous 4 months

Table NUT-8

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Weighed	112	51%	136	70%	51	28%	132	65%
b. Not weighed	110	49%	59	30%	129	72%	72	35%
TOTAL	222	100%	195	100%	180	100%	203	100%

Source: "Rapid Survey" Esperanza/Bolivia

• *Objective: Promote Exclusive Breastfeeding for Six Months, Promote Early Breastfeeding During First Hours After Birth. and Promote Prolonaed Breastfeedinn Until 13 Months.* Figure III-30 shows the results of the survey in these three areas, as well as the objectives established for them. Exclusive breastfeeding has risen significantly in both project zones, but remarkably in Entre Rios. Early breastfeeding is rising, as well, and both of these areas have achieved their objective. However, prolonged breastfeeding has been more problematic. The social investigation showed that many mothers tend to stop after the 12th month and have weaned the child completely by then despite the educational efforts to change this. Nonetheless, the indigenous population of Guarani and Mataco Indians in the project area do breastfeed for 24 months, and this reflects the high level of prolonged breastfeeding even at baseline in both project areas.

FIGURE III-30

BREAST FEEDING ACCORDING TO SURVEY

Objectives: 20% of mothers reporting exclusive breast-feeding in first 6 months
50% of mothers beginning breast-feeding during first 8 hours postpartum 90% of mothers reporting prolonged breast-feeding until 13 months

Table NUT-9

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Exclusive breast-feeding	6	15%	12	38%	8	15%	29	60%
b. Early breast-feeding	118	41%	184	63%	118	41%	165	59%
c. Prolonged breast-feeding	64	55%	70	60%	88	75%	80	66%

ource: "Rapid Survey" Esperanza/Bolivia

• *Objective: 90% of Mothers Will Introduce a Complete Pattern of Feeding Between 9-l 1 Months.* III-31 shows the results of this evaluation. Entre Rios has shown significant growth in all areas stressed through the educational messages. This is because very little was done prior to this new project. Yacuiba and Villa Montes showed some growth but not as significant as Entre Rios because a lot of project activities had stressed this before. Nonetheless, this objective has really not been achieved except in the area of iodized salt and the addition of extra fat to the child's diet. Fat is available in most households in the Chaco. Our feeling is this objective is too ambitious. We doubt that 90% of mothers in the United States would achieve this objective despite a lot of nutritional education in the school system. It is pleasing, however, to see the growth in Vitamin A-rich foods which reflects specific project objectives in the Vitamin A component. The use of vegetable proteins has also significantly risen, introducing sources of other vitamins and micro-nutrients. This reflects the growing popularity of community gardens.

FIGURE III-31

COMPLEMENTARY DIET ACCORDING TO SURVEY

Objective: 90% of mothers introduce from 9-l 1 months: animal proteins, vegetables, Vitamin A, fats and iodized salt

Table NUT-10

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Animal proteins	31	76%	42	79%	17	46%	21	62%
b. Vegetable proteins	15	37%	25	47%	12	32%	21	62%
c. Sources of Vit. A	28	68%	46	87%	17	46%	21	62%
d. Fat/oil	33	81%	48	91%	17	46%	29	85%
e. Iodized salt	38	93%	51	96%	22	59%	31	91%

Source: "Rapid Survey" Esperanza/Bolivia

• *Objective: 80% of Mothers Can Name at Least One Vitamin A-rich Food: 40% of Mothers Respond that Night Blindness is Prevented with Vitamin A.* Figure III-32 shows the results of this evaluation: Clearly, the objectives have not been achieved. This is surprising, given the results in Figure III-31 that show that mothers in both project zones have significantly increased the amount of Vitamin A-rich foods that have been given to their children. The results here may be an artifact of the way in which the survey questions were asked. Nonetheless, it's clear that more work needs to be done in Vitamin A education.

FIGURE III-32

MICRONUTRIENTS (KNOWLEDGE ACCORDING TO SURVEY)

Objectives: 80% of mothers can name at least 1 food rich in Vitamin A
40% of mothers respond that night blindness is prevented with Vitamin A

Table NUT-11

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Name foods rich in Vit.A	126	42%	148	49%	67	21%	166	47%
b. Know that night blindness is prevented with Vit.A	34	11%	49	16%	20	7%	21	8%

Source: "Rapid Survey" Esperanza/Bolivia

• *Objective: Children 12-24 Months Will Receive Two Doses/Year of Vitamin A; Pregnant Women Will Receive at Least 90 Tablets of Iron.* Figure III-33 shows the objectives established and the results. There has been good growth in the percentage of children who received two doses per year of Vitamin A, as well as good growth in the pregnant women who received iron supplementation. Nonetheless, the objectives have not been achieved and more work needs to be done. The source of this information is the MOH information system, since these questions were not included in the questionnaire.

FIGURE III-33

MICRONUTRIENTS (SUPPLEMENTS) ACCORDING TO MOH STATS

Objectives: 80% of children 12-24 months had received 2 doses/year of Vitamin A
80% of mothers who had prenatal control have received a complete dose of iron sulphate

Table NUT.-12

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. 2 doses Vit. A children 9 months-5 years	1698 caps.	20%	4930 caps	51%	555 caps	29%	1634 caps	*65%*
b. 90 tablets iron sulphate to pregnant women	8235 tabs.	30%	116716 tabs.	53%	5950 tabs.	10%	22725 tabs.	31%

ource: "Health Info. System" Esperanza/Bolivia "MOH stats"Tarija

No specific objectives were established in the DIP for improvements in rates of inadequate growth and nutrition in children under the age of two; yet, the project has made significant achievements in these areas as well. Figures III-34 and III-35 present the results of this analysis.

FIGURE III-34

CHILDREN WITH INADEQUATE GROWTH

DISTRICT	INADEQUATE GROWTH			
	INITIAL 1990	BASE 1993	MIDTERM 1995	FINAL 1997
VILLA MONTES	21.7%	15.8%	13.8%	13.6%
YACUIBA	25.0%	15.6%	16.0%	14.8%
ENTRE RIOS	NA	16.0%	24.0%	13.0%

The project has trained health workers to tag growth charts with green, yellow or red yarn. Green means adequate growth rates; yellow means slowing or flattening of growth; red means a decline. It is a simple matter for each health worker to report the numbers of children in each category. This is an important part of the health information system installed during project life.

A steady improvement in rates of inadequate growth is seen in all project areas during the life of the project. Final data were not available in Yacuiba. The apparent rise in Entre Rios from baseline to mid-term represents a quadrupling of the children enrolled in the growth monitoring program, many with inadequate rates of growth. Once recognized, they were treated according to program norms and growth rates improved.

FIGURE III-35

PREVALENCE OF MALNUTRITION

DISTRICT	PREVALENCE OF MALNUTRITION			
	INITIAL 1990	BASE 1993	MIDTERM 1995	FINAL 1997
VILLA MONTES	39.0%	23.9%	23.5%	26.5%
YACUIBA	37.5%	32.9%	28.5%	30.0%
ENTRE RIOS	NA	33.0%	31.1%	27.0%

MOH norms define malnutrition as greater than two standard deviations from the median weight for age. Malnutrition rates were high in all project zones and declined over the life of the project. They increased slightly in Villa Montes and Yacuiba in the last two years of project life. This corresponded to a period of drought, as well as withdrawal of project supports. Rates continued to decline in Entre Rios as project supports continued.

This improvement in nutritional rates corresponds to a time period of intensive program services. As noted previously, coverage of ORT and appropriate treatment of pneumonias improved significantly. These services do lead to improved nutritional services. In addition, as a result of social marketing, nutritional messages on Vitamin A and a full complementary diet are stressed. The identification of a child with an inadequate rate of growth triggers more intensive interventions, including home visits, one-on-one educational interventions, vitamin supplements, and focused medical care. The results of all these interventions are obvious.

Since malnutrition is the end result of a complex web of socioeconomic, cultural and health factors, it is unusual to encounter such striking improvements in nutritional status as a result of a child survival project. These results deserve further analysis and dissemination.

(e) *Expanded Program In Immunizations (EPI). The* CS-II and CS-V projects focused a tremendous amount of attention on the EPI program in all aspects of implementation, supervision and evaluation. Project staff felt that the Villa Montes-Yacuiba MOH staff were entirely capable of managing EPI without any additional support from the child survival program except for logistical assistance during vaccination campaigns. For the most part, attention was focused in the Entre Rios area. The DIP has specified objectives for EPI coverage and these are cited below.

- *Objective: Training of Health Workers in EPI.* Figure III-36 shows the objectives established in each project zone for the number of workshops and anticipated attendance at them. In Entre Rios, it was necessary to incorporate additional workshops after evaluation showed defects in administrative aspects of the EPI campaign, especially in registering vaccinations given and in analysis of coverage. Objectives for EPI training were met or exceeded in all project zones.

FIGURE **III-36**

ACHIEVEMENTS IN EPI
EVALUATION ACCORDING TO PROCESS INDICATORS (INPUTS-OUTPUTS)
TRAINING OF HEALTH WORKERS

Goal Yacuiba-Villa Montes: 1 workshop on education in EPI for 28 workers: 17 Yacuiba, 11 Villa Montes.
Goal Entre Rios: 2 workshops on technical norms (EPI) for 19 workers.

Table EPI-1

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTIC.	ACTUAL	%
YACUIBA	1	10	1000%	17	17	100%
VILLA MONTES	1	1	100%	11	11	100%
ENTRE RIOS	2	6	300%	38	41	108%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Supervision of Health Workers in EPI.* Figure III-37 shows the objectives established for each project area for supervision. Only one round of supervision was scheduled in the previous project zones. However, the meetings through the Committee for the Analysis of Information showed there were still some gaps in the administrative aspects of EPI, so an additional workshop was held each year in those project zones. You can see that each of the objectives in this area were met. One supervision means one health center.

FIGURE III-37

SUPERVISION HEALTH WORKERS (EPI)

Goal Y acuiba-VM : 1 round of supervision for 28 workers:
17 Yacuiba, 11 Villa Montes.
Goal Entre Rios: 3 rounds per year of supervision for 12 workers.

Table EPI-2

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	3	300%	51	46	90%
VILLA MONTES	1	3	300%	33	31	94%
ENTRE RIOS	3	3	100%	36	36	100%

ource: "Health Info. System" Esperanza/Bolivia

• *Objective: Training of Volunteer Community Health Workers in EPI*. Figure III-38 shows the objectives established in each project zone and the objectives met. In both Yacuiba and Entre Rios, it was necessary to tram the promoters in each sector of the project zone; thus the number of executed workshops is far greater than what was planned. The number of people trained, however, is very close to what was envisioned. The newer project zone, Entre Rios, showed somewhat less training than what was anticipated. The communities are very scattered in Entre Rios; most of the promoters work in agriculture and could not attend as easily, even though six different workshops were held in the different sectors. Since Entre Rios is a new project zone, there was a need to train an increased number of promoters. Yacuiba is much more urban and better organized; the project has worked there for years, and there's also been an administrative support project of the International Development Bank. Each area was better organized, a larger number of workshops could be held, and there was an increased number of participating promoters.

FIGURE III-38

TRAINING OF HEALTH WORKERS (EPI)

Goal Yacuiba-VM: 1 workshop on promotion and social mobilization in EPI for 70 promoters: 50 Yacuiba, 20 Villa Montes.

Goal Entre Rios: 1 workshop on promotion and social mobilization in EPI for 96 community workers.

Table EPI3

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	10	1000%	50	75	150%
VILLA MONTES	1	1	100%	20	20	100%
ENTRE RIOS	1	6	600%	96	69	72%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: 90% Coverage for Complete Set of Vaccinations in Children 12-24 Months by End-of-Project; 60% Coverage for TT2 in Women of Fertile Age.* Figure III-39 shows the coverage figures both initial and final in the target population.

FIGURE III-39

VACCINATION COVERAGES IN POPULATION WITH AND WITHOUT HEALTH I.D. CARD

Table EPI-6

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Polio 1	108	76%	79	95%	101	76%	89	67%
b. Polio 3	90	63%	64	77%	75	56%	77	58%
c. DPT 1	107	75%	79	95%	101	76%	89	67%
d. DPT 3	86	61%	64	77%	67	50%	72	55%
e. BCG	100	70%	74	89%	89	67%	89	67%
f. Sarampion	93	65%	67	81%	74	56%	65	49%
h. TT2	76	26%	44	15%	67	23%	99	35%
Children 12-24 mths w/ complete vac's.	80	56%	57	69%	57	43%	50	40%

Source: "Rapid Survey" Esperanza/Bolivia

Coverage has improved in both project zones; however, there is a drop-off between the first and third doses of polio and DPT in both project zones. This has been a consistent finding throughout the child survival campaign and shows that mothers are not completely aware that three doses of these vaccines are needed. BCG shows relatively high coverage because that is given very early in life. The norm for measles immunization changed during the life of the project. It used to be given at nine months of age; now it's given at 12-15 months. Clearly, the new project area of Entre Rios needs additional work in measles coverage at a later age. The objective two doses of tetanus toxoid in pregnant women of fertile age group has failed miserably. The overall percentage of children with a complete series of immunizations has risen significantly, from 56% to 69% in Yacuiba-Villa Montes, but it's been stable in Entre Rios, suggesting that despite a lot of effort put into additional training of health care workers, the population has not taken advantage of the immunization services available to them. Clearly, social marketing of EPI services needs to be done in the new project area.

In discussing this situation with the project staff, they feel the apparent lack of response in Entre Rios is a registration problem. Project staff feel the actual percentage of immunization coverage is much higher. The majority of the population in Entre Rios are traditional indigenous Indian groups, and they have not yet captured the need to keep the immunization card as a record. Many of them do not speak Spanish and an immunization card in a foreign language has no meaning to them. The rules of the survey established by Johns Hopkins place emphasis on having the card rather than on completing the immunizations; thus the apparently low coverage rate in Entre Rios is felt to be an artifact of poor maintenance of the immunization card. Since project activities have ended, there's little chance that additional community education will occur on this issue. However, the district health office staff is well aware of it, and has agreed to take steps to try to improve maintenance of the immunization card.

Two full-time staff were assigned by the MOH to EPI registration and the MOH coverage statistics are very complete. MOH data for EPI coverage show 89%-99% coverage for OPV3 and DPT3 at end-of-project in all zones. Measles is reported somewhat lower at 77 %-80%. Significant project efforts were directed towards improving the health information system and staff have a lot of confidence in these results. The disparity between MOH data and the final survey does appear to be an artifact of maintaining the card.

• *Objective: Knowledge Acquired About Immunizations*. Figure 11140 outlines the objectives regarding knowledge of the need for two or more doses of tetanus toxoid and knowing that tetanus toxoid protects them and their children. The newer project zones have higher rates of knowledge than the older project zones -- in fact, there's not been a tremendous increase except for Entre Rios in the knowledge that tetanus toxoid protects the woman and her child. This is clearly reflected in the results that show a small but significant drop-off between the first and second doses of DPT and polio. Obviously, more attention needs to be focused on these through educational programs.

FIGURE III-40

KNOWLEDGE ACQUIRED ACCORDTNG'TO SURVEY (EPI)

Objectives: 80% of mothers know necessity of 2 or more doses of TT
60% of mothers know that TT protects them and their children

Table EPI-7

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Need 2 or more doses of TT	182	60%	204	68%	136	47%	128	46%
b. TT protects her and her child	121	41%	158	53%	76	26%	126	45%

Source: "Rapid Survey" Esperanza/Bolivia

The project also supplied cold chain equipment, including bottled gas for refrigerators, thermometers, coolers for transport and vehicles in each project area. Despite this, emphasis needs to be placed on maintaining high levels of immunization coverage.

(f) *Maternal Health.* The current child survival project has highlighted maternal care as a priority in all project zones. However, the social marketing investigation and implementation plan were not completed until the time of the mid-term evaluation; thus the major emphasis in this component began in later stages of the project. There has been a significant amount of training of health care workers and community promoters, as well as the production of radio spots, TV videos and other educational programs to promote early use of prenatal services and delivery in a safe environment with trained personnel. Since July of 1996, the MOH has provided prenatal visits and delivery services gratis as part of a new national insurance for maternity care. This has given considerable boost to this component of the project. An analysis of the achievements of the objectives outlined in the DIP follows.

- *Objective: Training of Health Workers in Maternal Health.* Figure III-41 shows an analysis of the training component and the objectives achieved during the life-of-project. In Villa Montes the social investigation showed the need to improve training in four major areas: (1) ideal prenatal care; (2) the human aspects of delivery (This was stimulated by the fact that mothers were not treated with respect in the health services, and thus, did not go. They were also not allowed to follow their traditional customs; a lot of training focused on cultural-based practices, both in Villa Montes and Entre Rios.); (3) management of obstetric emergencies; and (4) epidemiologic surveillance of maternal mortality. The original objectives established in the DIP have been over-achieved.

FIGURE III-41

ACHIEVEMENTS IN MATERNAL HEALTH
EVALUATION ACCORDING TO PROCESS INDICATORS (INPUTS-OUTPUTS)
TRAINING HEALTH WORKERS (MATERNAL HEALTH-)

Goal Y acuiba-VM : 1 workshop on high risk for 53 workers:
36 Yacuiba, 17 Villa Montes.
Goal Entre Ríos : 3 workshops on technical norms in Maternal Health for 14 workers.

Table MAT-l

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	**36**	**36**	100%
VILLA MONTES	1	**4**	**400%**	**68**	**70**	**103%**
ENTRE RIOS	**3**	**3**	100%	**42**	**42**	100%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Swervision of Health Workers in Maternal Health*. Figure III-42 shows the results of this analysis. The number of rounds of supervision were increased in the older project zones after initial efforts, showed that the health worker was not managing the norms for pre-natal care appropriately; thus the second round was put in to emphasize the need to use the pre-natal forms established by the MOH which, in essence, require the health worker to walk through me established norms for care. Obviously, supervision has been excellent and objectives have been achieved.

FIGURE III-42

SUPERVISION HEALTH WORKERS (MATERNAL HEALTH)

Goal Y acuiba-VM : 1 round of supervision for 28 workers:
17 Yacuiba, 11 Villa Montes.
Goal Entre Rios: 3 rounds of supervision for 14 workers

Table MAT-2

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	1	2	200%	34	31	90%
VILLA MONTES	1	2	200%	22	21	94%
ENTRE RIOS	3	3	100%	42	39	93%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Training of Volunteer Health Promoter.. in Maternal Health.* Figure III-43 shows the achievements in this area. The objectives have clearly been met. The training is designed to identify the signs of high-risk pregnancies and obstetric emergencies in order for the promoter to refer the pregnant woman more quickly, or at an earlier time, to the appropriate health services. No attempt was made to train the promoters in delivery.

FIGURE III-43

TRAINING HEALTH PROMOTERS (MATERNAL HEALTH)

Goal Yacuiba-VM: 1 workshop on signs of obstetric emergencies for 70 promoters: 50 Yacuiba, 20 Villa Montes.
Goal Entre Rios: 1 workshop on signs of obstetric emergencies for 96 promoters

Table MAT-3

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	50	45	90%
VILLA MONTES	1	1	100%	20	18	90%
ENTRE RIOS	1	1	100%	96	79	82%

Source: "Health Info. System" Esperanza/Bolivia

• *Objective: Training of Traditional Birth Attendants*. Figure III-44 shows the results of this analysis. All the objectives originally established have been either achieved or over-achieved, especially in Entre Rios. A part of the social investigation in maternal care was to identify all the practicing TBAs in each project zone. The training was organized together with the district health office and UNICEF provided equipment for home deliveries -- a midwife kit. The reason Entre Rios saw such a significant growth in the number of workshops and the number of TBAs is that two NGOs that work exclusively with Guarani Indians joined forces with the project to identify TBAs and significantly increase attendance.

FIGURE III-44

ADDITIONAL TRAINING FOR TRADITIONAL BIRTH ATTENDANTS

General Goal : Train traditional birth attendants in clean birth and recognition of obstetric emergencies

Table MAT-4

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	46	46	100%
VILLA MONTES	1	1	100%	18	16	89%
ENTRE RIOS	2	4	200%	34	66	194%

Source: "Health Info. System" Esperanza/Bolivia

. *Obieaive: Supervision of Volunteer Community Health Promoters in Maternal Health.*
Figure III-45 shows the achievement of this objective has been excellent. Again, in Entre Rios, due to the high number of trained health promoters, the supervision objectives were exceeded.

FIGURE III-45

SUPERVISION (IN GROUP) OF HEALTH PROMOTERS (MATERNAL HEALTH)

Goal Yacuiba-VM: 1 round of supervision (in group) for 70 promoters: 50 Yacuiba, 20 Villa Montes.
Goal Entre Rios: 1 round of supervision (in group) for 96 promoters:

Table MAT-5

WORK ZONE	ROUNDS			SUPERVISIONS		
	PROGR.	EXEC.	%	ANTICI.	EXEC.	%
YACUIBA	1	1	100%	50	45	90%
VILLA MONTES	1	1	100%	20	18	90%
ENTRE RIOS	1	1	100%	96	124	129%

Source: "Health Info. System" Esperanza/Bolivia

• *Obieaive: Supervision of Traditional Bith Attendants*. Figure III-46 shows the analysis of this objective. Interestingly enough, although Entre Rios had a much higher number of TBAs who participated in the training, they had a smaller number who actually received supervision. One reason for this appears to be a letter sent out some years ago by the district police command to each village stating that any unregistered health practitioner would be prosecuted. This applied both to curanderos and TBAs. Although the current government has reversed that policy, there's a lingering suspicion among a lot of TBAs that if they come to the attention of the authorities, they're liable to be arrested, or at least severely penalized.

FIGURE III-46

SUPERVISION TRADITIONAL BIRTH ATTENDANTS (MATERNAL HEALTH)

Goal Yacuiba-VM: 1 round of supervision (in group) for 64 birth attendants - 46 Yacuiba, 18 Villa Montes.
Goal Entre Rios: 1 round of supervision (in group) for 66 birth attendants

Table MAT-6

WORK ZONE	ROUNDS OF SUPERVISION			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	46	40	87%
VILLA MONTES	1	1	100%	18	15	83%
ENTRE RIOS	1	1	100%	66	52	79%

Source: "Health Info. System" Esperanza/Bolivia

Figure III-47 shows the implementation of additional activities based on the results of the social investigation.

FIGURE III-47

ADDITIONAL MATERNAL HEALTH ACTIVITIES (SOCIAL MARKETING)

Goal of project: Implement activities according to results of investigation

Table MAT-7

INTERVENTION	YACUIBA			VILLA MONTES		
	PROGR.	EXEC.	%	PROG.	EXEC.	%
1. Qualitative/ Quantitative investigation	1	1	100%	1	1	100%
2. Production of educational pamphlet	1	1	100%	1	1	100%
3. Education of high school students	1200 students	1400 students	117%	580 students	637 students	110%
4. Watchdog committee (mortality)	1	1	100%	1	1	100%
7. Production and broadcasting of radio jingles	3	3	100%	3	3	100%
8. Production and broadcasting of TV spots	2	2	100%	3	3	100%

Source: "Health Info. System" Esperanza/Bolivia

After the social investigation, in Yacuiba and Villa Montes, it **was** decided to reinforce recognition of obstetrical emergencies and early reference to the health services, as well as improving the quality of the prenatal care and delivery. A part of the recognition of obstetrical emergencies was **to** tram students in schools, both primary and secondary, so they could assist both within their families and within their communities to train others and help identify high-risk pregnancies and obstetrical emergencies. In addition, a lot of TV spots and radio programs concerning this were implemented in project areas. Also, the hospital and community health worker personnel were actively involved in community education activities.

• *Objective: Pre-natal Coverage.* Figure III-48 outlines the objectives established for pre-natal coverage and the achievements according to the final survey.

FIGURE **III-48**

EVALUATION ACCORDING TO IMPACT INDICATORS (PROPOSED OBJECTIVES)

PRENATAL CONTROL COVERAGE ACCORDING TO SURVEY

Objective: 80% of mothers will have had at least 1 prenatal control
50% of pregnant women begin controls before 5th month
60% of pregnant women have 2 or more prenatal controls

Table MAT-S

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Mothers with 1 prenatal control	211	71%	251	84%	113	39%	179	64%
b. Mothers with prenatal control before 5th month	146	69%	178	72%	62	55%	93	54%
c. Mothers with 2 or more controls	194	65%	230	93%	82	75%	163	91%

ource: "Rapid Survey" Esperanza/Bolivia

Clearly, all objectives established for the project in pre-natal care have been met, and there's been a significant rise in all project zones. The most remarkable rise has been in Entre Rios which is totally new to the project; but nonetheless, significant rises were seen in the older project zones which had experienced only a moderate amount of emphasis in maternal care in the previous project. The percentage of women having more than three prenatal visits has risen from 60% to 65 % in Villa Montes-Yacuiba, and from 24% to 48% in Entre Rios. This is the MOH norm and shows that good progress is being made; however, more work needs to be done.

• *Objective: 70% of Births Will Be Attended bv Someone who is Trained.* Figure III-49 shows the achievement of this result has been obtained in Yacuiba and Villa Montes. There's been a significant improvement in the percentage of births attended by trained personnel in Entre Rios, but the objective has not yet been met there.

FIGURE III-49

QUALIFIED BIRTH ACCORDING TO SURVEY

Objectives: 70% of births with qualified attention

Table MAT-9

OPTIONS	YACUIBA-VM				ENTRE RIOS			
	INITIAL		FINAL		INITIAL		FINAL	
	#	%	#	%	#	%	#	%
a. Protected births	204	68%	242	81%	86	30%	155	55%
b. Unprotected births	94	32%	57	19%	204	70%	125	45%
c. TOTAL	298	100%	299	100%	290	100%	280	100%

Source: "Rapid survey" Esperanza/Bolivia

The tables that follow show the results of the additional training included in the one-year extension given to Entre Rios. No specific objectives were established in the original DIP, but some were established at the beginning of the fourth year. They obviously have all been met or exceeded.

EVALUATION ACCORDING TO DIP CS-X

TRAINING OF WORKERS IN HEALTH EDUCATION

Goal Y acuiba: 1 workshop on use of the cassette-debate as an instrument for health education for 12 health services

Goal Entre Rios: 1 workshop on use of the cassette-debate as an instrument for health education for 13 health services

Table FORT-l

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	1	1	100%	12	10	80%
ENTRE RIOS	1	1	100%	13	12	92%

Source: "Health Info. System" Esperanza/Bolivia

WORKSHOP RESULTS

Table FORT-2

WORK ZONE	EQUIPPING OF HEALTH SERVICES			USE OF MATERIAL		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
YACUIBA	10	10	100%	10	8	80%
ENTRE RIOS	12	12	100%	12	10	83%

ource: "Health Info. System" Esperanza/Bolivia

TRAINING HEALTH WORKERS IN INFORMATION SYSTEMS AND ORGANIZATION

Goal Entre Ríos: 2 workshops on information systems and basic administration of a health post for 13 health services

Table FORT-3

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
ENTRE RIOS	2	2	100%	26	36	138%

Source: "Health Info. System" Esperanza/Bolivia

WORKSHOP RESULTS

Table FORT-4

WORK ZONE	IMPROVEMENT MOH			FILES/FAMILY		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
ENTRE RIOS	18	16	89%	18 services	17 services	94%

Source: "Health Info. System" Esperanza/Bolivia

TRAINING HEALTH WORKERS IN OPERATIONAL PLANS

Goal Entre Ríos: 1 workshop on elaboration of operation plans for 13 health services

Table FORT-5

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
ENTRE RIOS	1	1	100%	13	18	138%

Source: "Health Info. System" Esperanza/Bolivia

WORKSHOP RESULTS

Table FORT-6

WORK ZONE	OPERATIONAL PLANS		
	PROGRAMMED	ELABORATED	%
ENTRE RIOS	18	18	100%

Source: "Health Info. System" Esperanza/Bolivia

TRAINING HEALTH WORKERS IN STATISTICAL ANALYSIS AND PRESENTATION OF SAME TO COMMUNITY

Goal Entre Ríos: 1 workshop on community analysis for 13 health services

Table FORT-7

WORK ZONE	WORKSHOPS			ATTENDANCE		
	PROGR.	EXEC.	%	ANTICI.	ACTUAL	%
ENTRE RIOS	1	1	100%	13	16	123%

Source: "Health Info. System" Esperanza/Bolivia

WORKSHOP RESULTS

Table FORT-S

WORK ZONE	COMMUNITY ANALYSIS OF DATA		
	PROGRAMMED	EXECUTED	%
ENTRE RIOS	16	15	94%

ource Esperanza/Bolivia

B. ANALYSIS OF SITE VISITS AND INTERVIEWS

The final evaluation is intended to be based on a comparison of the results of the baseline and final surveys using the Johns Hopkins Rapid Survey Methodology. However, the data would be rather dry without the richness of experience provided by the site visits that were undertaken during the week of evaluation. A number of key observations are pertinent to our conclusions and recommendations.

1. The government of Bolivia has made a tremendous investment in the last four years in the development of rural health services. Everywhere we traveled new health posts, health centers and area hospitals had been constructed and equipped. For many communities, volunteer community promoters or nurse auxiliaries who were intended to be supported by the community alone now have official government salaries. Previous analyses of the effects of government salaries showed that those health posts with salaried personnel provided significantly more health services than those without; thus new health facilities that are well equipped, that have radio communication with headquarters for consultation, and also have salaried personnel, have significantly improved health services in the project area. This is a dramatic difference from ten years ago when the first stage of the project had to work with communities to remodel or construct new health centers.

2. The health workers interviewed showed high-quality knowledge about all the health programs. For the most part, we dropped in unannounced, and yet they responded with 90% accuracy to all questions about technical aspects of individual health programs. Thus, the training seems to have been well captured by the intended audience.

3. The administrative organization of the health post and area hospitals are light years improved from five years ago. Each health center or area hospital visited had a well-organized system in place for every health program, had health records for patients and families involved in the program, had norms established, and had a clearly-defined information system in which they were reporting on a monthly basis to the district health office. The pharmacies were clean, well-kept, well-organized, and each community had established a rotating fund for pharmacies, which was only a dream five years ago. This initially started as a pilot project within this child survival area, and has now been officially adopted as MOH policy. This improved administrative organization at the health center and health post level is a key lesson learned that will be discussed later.

4. The communities have been incredibly involved in the development of this rural health program from the beginning and remain committed to it. In every community we visited, the leaders of the health committee would stop by when they heard we were there and offered their opinions (spontaneously) about the high quality of the services and their accessibility. The

process of community participation has been considerably reinforced by the Law for Popular Participation, which was implemented as of July 1996. In essence, this transferred huge blocks of funds from central ministries to the local communities for them to use as they see fit to meet their needs in each program area. Thus, even rural communities with only 1,000 people had some money available to use for the health system. They most frequently used this to pay salaries, to buy medications and to upgrade the quality of the health center. Under the law, health committees must be legally constituted to supervise these funds. This required a significant amount of training by the project. It is clear, however, that the heavy emphasis on community participation in this project has considerably facilitated sustainability.

5. Only by traveling out to the rural health centers can you gain an appreciation of how isolated they are, especially the traditional Guarani Indian villages in the lowlands and the Quechuan villages in the highlands. They are extremely isolated by roads that require four-wheel drive vehicles to track up dry riverbeds or over hard-rock mountain passes. It's clear that in the rainy season these roads in both the lowlands and the highlands would be impassable, so that each health unit has to operate independently. The pattern of training health workers and supplying them with radios for consultation has proven to be a valuable strategy for achieving the objectives outlined in this project.

Appendix III-2 is a complete copy of the final evaluation survey with results, as requested by USAID.

C. PIPELINE ANALYSIS OF PROJECT EXPENDITURES

The following three pages are the pipeline analysis of project expenditures.

PVO/COUNTRY ESPERANCA INC./BOLIVIA
Cooperative Agreement No. FA0-0500-A-00-3019-00

1995 COUNTRY PROJECT PIPELINE ANALYSIS: PART A- HEADOUARTERS

		Actual Expendiiret to Date (08/01/93 to 06/30/97)			Projected Expenditures Against Remaining Obligated Funds (07/01/97 to 09/30/97)			Total Agreement Budget (Columns 1 & 2) (08/01/93 to 09/30/97)		
I. DIRECT COSTS		USAID	PVO	TOTAL	USAID	PVO	TOTAL	USAID	PVO	TOTAL
A. PERSONNEL	1. Headquarters - salaries/wages	142.07	0.05	142.121	0.00	6.80	6.80	143.07	30.80	173.87
	2. Field. Technical Personnel - salaries/wages			0.00	0.00	0.00	0.00			0.00
	3. Field. Other Personnel salaries/wages			0.00	0.1)0	0.00	0.00			0.00
	4. Fringes - Headquarters & Field	30.29	0.00	30.28	0.1)0	0.00	0.00	28.71	3.90	32.61
								71.78	34.70	208.48
	1. SUBTOTAL - PERSONNEL (USA)	172.36	0.05	172.601	0.00	0.00	0.00	2 0.00 2.40	5.90	8.30
TRAVEL/PERDIEM	2. Headquarters - Internat	0.78	0.00	0.78	0.00	0.a0	0.00	7.80	1.50	9.30
	3. Fi... Jn Country ... tional			0.00	0.00	0.00	0.001 -		(7.06)	(7.06)
	4. Field - Interni...nal			0.00	0.00	0.00	0.00			0.00
	SUBTOTAL - TRAVEL	14.96	1.431	16.391		nnnl		10.20	0.34	10.54
C. CONSULTANCES	1. Evaluation Consultants - Fees	13.61	0.00	13.61	12.'"'	0.00	12.36	36.60		36.60
	2. Other Consultants - Fees			0.00	0.00	0.00	0.0J			0.00
	3. Consultant travel/per Jiem	3.79	0.11	3.90	6.71	0.00	5.71	9.50		9.50
	SUBTOTAL - CONSULTANCES	17.40	0.11	17.51	18.07	0.00	18.07	46.10	0.00	46.10
D. PROCUREMENT	1. Supplies a. Headquarters	0.58	0.00	0.58	0.00	0.00	0.00	8.17	32.64	40.81
	b. Field - Pharmaceuticals (ORS, Vit A, drugs, etc.)			0.00	0.00	0.00	0.00			0.00
	c. Field - Other			0.00	0.00	0.00	0.00			0.00
	2. Equipment a. Headquarters			0.00	0.00	0.00	0.00		2.00	2.00
	b. Field			0.00	0.00	0.00	0.00			0.00
	3. Training a. Headquarters			0.00	0.00	0.00	0.00			0.00
	b. Field		0.00	0.00	0.00	0.00	0.00			0.00
	SUBTOTAL - PROCUREMENT	0.58	0.00	0.58	0.00	0.00	0.00	8.17	34.64	42.81
E. OTHER DIRECT COSTS	1. Communications a. Headquarters	7.89	1.06	8.95	0.00	0.00	0.00	3.60	1.80	5.40
	b. Field			0.00	0.00	0.00	0.00			0.00
	2. Facilities a. Headquarters			0.00	0.00	0.00	0.00	2.10		2.10
	b. Field			0.00	0.00	0.00	0.00			0.00
	3. Other a. Headquarters	18.32	1.30	19.62	0.00	0.00	0.00	8.80		8.80
	b. Field			0.00	0.00	0.00	0.00			0.00
	SUBTOTAL - OTHER	26.21	2.36	28.57	0.00	0.00	0.00	14.50	1.80	16.30
TOTAL - DIRECT COSTS		231.51	3.94	235.45	18.07	6.80	24.67	250.74	71.48	322.23
II INDIRECT COSTS										
A. INDIRECT COSTS	1. Headquarters	25.12	1.21	26.33	2.70	0.99	3.69	27.53	7.54	35.06
	2. Field									0.00
TOTAL INDIRECT COSTS		25.12	1.21	26.33	2.70	0.99	3.69	27.53	7.54	35.06
GRAND TOTAL (DIRECT AND INDIRECT COSTS)		256.63	5.151	261.78	20.77	7.59	28.36	278.27	79.02	357.261

1995 COUNTRY PROJECT PIPELINE ANALYSIS: PART B - FIELD

		Actual Expenditures to Date (08/01/93 to 06/30/97)			Projected Expenditures Against Remaining Obligated Funds (07/01/97 to 09/30/97)			Total Agreement Budget (Columns 1 & 2) (08/01/93 to 09/30/97)		
I. DIRECT COSTS		USAID	PVO	TOTAL	USAID	PVO	TOTAL	USAID	PVO	TOTAL
A. PERSONNEL	1. Headquarters - salaries/wages			0.00	0.00	0.00	0.00			0.00
	2. Field, Technical Personnel - salaries/wages	252.43	39.61	292.04	0.00	8.92	8.92	131.57	35.29	166.86
	3. Field, Other Personnel- salaries/wages	109.34	43.07	152.41	0.00	7.42	7.42	188.00	14.50	212.50
	4. Fringes - Headquarters & Field	54.79	6.36	61.15	0.00	0.00	0.00	73.30	21.50	94.80
	SUBTOTAL - PERSONNEL	416.57	89.03	505.60	0.00	16.34	16.34	402.87	71.29	474.16
B. TRAVEL/PERDIEM	1. Headquarters - Domestic (USA)			0.00	0.00	0.00	0.00			0.00
	2. Headquarters - International			0.00	0.00	0.00	0.00			0.00
	3. Field - In Country	39.71	16.99	56.70	0.00	0.00	0.00	34.00	16.06	50.06
	4. Field - International	0.56		0.56	0.00	0.00	0.00	6.30		6.30
	SUBTOTAL - TRAVEL	40.27	16.99	57.26	0.00	0.00	0.00	40.30	16.06	56.36
C. CONSULTANCES	1. Evaluation Consultants - Fees			0.00	0.00	0.00	0.00			0.00
	2. Other Consultants - Fees			0.00	0.00	0.00	0.00			0.00
	3. Consultant travel/per diem			0.00	0.00	0.00	0.00			0.00
	SUBTOTAL - CONSULTANCES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
D. PROCUREMENT	1. Supplies a. Headquarters	0.00	0.00	0.00	0.00	0.00	0.00	2.00	1.64	3.64
	b. Field - Pharmaceuticals (ORS, Vit A, drugs, etc.)			0.00	0.00	0.00	0.00			0.00
	c. Field - Other		0.00	0.00	0.00	0.00	0.00		0.00	0.00
	2. Equipment a. Headquarters			0.00	0.00	0.00	0.00			0.00
	b. Field		56.43	56.43	0.00	0.00	0.00		61.80	61.80
	3. Training a. Headquarters			0.00	0.00	0.00	0.00			0.00
	b. Field	3.59	1.96	5.55	0.00	0.00	0.00	12.90	3.60	16.50
	SUBTOTAL - PROCUREMENT	3.59	58.39	61.98	0.00	0.00	0.00	14.90	67.04	81.94
E. OTHER DIRECT COSTS	1. Communications a. Headquarters			0.00	0.00	0.00	0.00			0.00
	b. Field	22.25	3.45	25.70	3.50	0.00	3.50	35.21	11.59	46.80
	2. Facilities a. Headquarters			0.00	0.00	0.00	0.00			0.00
	b. Field	0.69	0.33	1.02	0.00	0.00	0.00		35.10	35.10
	3. Other a. Headquarters			0.00	0.00	0.00	0.00			0.00
	b. Field	111.67	55.05	166.72	0.00	0.00	0.00	103.90	22.40	126.30
	SUBTOTAL - OTHER	134.61	59.84	193.44	3.50	0.00	3.50	139.11	69.09	208.20
TOTAL - DIRECT COSTS		595.03	223.25	818.28	3.50	16.34	19.84	597.18	223.48	820.66
II INDIRECT COSTS										
A. INDIRECT COSTS	1. Headquarters			0.00	0.00	0.00	0.00			0.00
	2. Field	64.55	68.75	133.30	0.53	2.45		65.56	23.56	89.12
TOTAL INDIRECT COSTS		64.551	68.75	133.30	0.53	2.45	0.00	66.56	23.56	89.12
GRAND TOTAL (DIRECT AND INDIRECT COSTS)		659.58	292.00	951.58	4.031	18.79	19.841	662.74	247.04	BOB.781

PVO/COUNTRY ESPERANCA INC./BOLIVIA
Cooperative Agreement No. FAO-0500-A-00-301 B-00

1995 COUNTRY PROJECT PIPELINE ANALYSIS: PART C - HEADQUARTERS/FIELD

		Actual Expenditures to Date (08/01/93 to 06/30/97)			Projected Expenditures Against Remaining Obligated Funds (07/01/97 to 09/30/97)			Total Agreement Budget (Columns 1 & 2) (08/01/93 to 09/30/97)		
I. DIRECT COSTS		USAID	PVO	TOTAL	USAID	PVO	TOTAL	USAID	PVO	TOTAL
A. PERSONNEL	1. Headquarters - salaries&ages	142.07	0.05	142.12	0.00	6.60	6.60	143.07	30.80	173.87
	2. Field, Technical Personnel -									
	3. Field Other Personnel-	292.04	39.61)		292.04	0.00)	8.92	8.92	131.57	35.29	166.86
	salaries/wages	109.34	43.07	152.41	0.00	7.42	7.42	198.00	14.50	212.50
	4. Fringes - Headquarters & Field	85.08	6.36	91.43	0.00	0.00	0.00	102.01	25.40	127.41
	SUBTOTAL - PERSONNEL	588.93	89.08	678.01	0.00	22.94	22.94	574.65	105.99	680.63
B. TRAVEL/PERDIEM	1. Headquarters - Domestic (USA)	14.18	1 A3	15.61	0.00	0.00	0.00	2.40	5.00	8.30
	2. Headquarters - International	0.78	0.00	0.78	0.00	0.00	0.00	7.80	1.50	9.30
	3. Field - In Country	39.711	16.99	56.70	0.00	0.00	0.00	34.00	9.00	43.00
	4. Field - International	0.50	0.00	0.50	0.00	0.00	0.00	- 50 6.30	0.00	6.30
	SUBTOTAL - TRAVEL	59.29	18.42	79.56	0.00	0.00	0.00		16.40	66.90
C. CONSULTANCES	1. Evaluation Consultants - Fees	13.61	0.00	13.61	12.36	0.00	12.36	36.60	0.00	36.60
	2. Other Consultants - Fees	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3. Consultant travel/per diem	3.78					5.71	9.50	0.00	9.50
	SUBTOTAL - CONSULTANCES	17.40	0.11	17.51	18.07	0.00	18.07	46.10	0.00	46.10
D. PROCUREMENT	1. Supplies									
	a. Headquarters	0.58	0.00	0.58	0.00	0.00	0.00	10.17	34.28	44.45
	b. Field - Pharmaceuticals (ORS, Vit A, drugs, etc.)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	c. Field - Other	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2. Equipment									
	a. Headquarters	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00	2.00
	b. Field	0.00	56.43	56.43	0.00	0.00	0.00	0.00	61.80	61.90
	3. Training									
	a. Headquarters	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	SUBTOTAL- PROCUREMENT	3.69	58.88	62.56	0.00	0.00	0.00	12.80	3.60	16.50
		4.17			0.00	0.00	0.00	23.07	101.68	124.75
E. OTHER DIRECT COSTS	1. Communications									
	a. Headquarters	7.09	1 06	8.95	0.00	0.00	0.00	3.60	1.80	5.40
	b. Field	2 1!.25	3.45	25.70	3.50	0.00	3.50	35.21	11.59	46.90
	2. Facilities									
	a. Headquarters	a1.00	0.00	0.00	0.00	0.00	0.00	2.10	0.00	2.10
	b. Field	a.4	- 0.33	1.02	0.00	0.00	0.00	0.00	35.10	35.10
	3. Other									
	a. Headquarters	18.32	1.30	IQ.62	0.00	0.00	0.00	8.80	0.00	8.60
	b. Field	111.67	55.05	166.72	0.00	0.00	0.00	103.90	22A0	126.90
	SUBTOTAL - OTHER	460.82	261.19	1,053.73	21.57 3.50	22.84 0.00	44.51 3.50	847.93 153.61	294.96 70.89	224.50
TOTAL DIRECT COSTS										1,142.88
II INDIRECT COSTS										
A. INDIRECT COSTS	1. Headquarters	25.12	1.21	26.33	2.70	0.99	3.69	27.53	7.54	35.06
	2. Field	64.55	68.75	133.30	0.53	2.45	2.98	65.56	23.56	89.12
TOTAL INDIRECT COSTS		89.67	69.96	159.63	3.23	3.44	6.67	93.09	31.10	124.18
GRAND TOTAL (DIRECT AND INDIRECT COSTS)		916.21	297.151	1,213.36	24.781	26.38	51.171	941.OI	326.05	1,267.07

D. LESSONS LEARNED

1. Sustainability takes time. This evaluation has shown that the project activities are 80-100% sustainable in the project zones that have had nine and ten years of experience. In the newer project zone, with only four years of experience, the sustainable level is only 50-60%, even though coverage of services approaches the older project areas. It's clear that previous experience can help improve coverage of services rapidly, but it does not translate into sustainability. At least two to four more years of technical assistance will be needed in the new project area to make them sustainable.

2. The social investigation and social marketing techniques using qualitative assessments are as essential to program success as technical capacity building. It is vitally important to understand the cultural perceptions of health and to design educational and mass media approaches to address those, as it is to train health workers appropriately in the technical services. Although baseline coverage of services in DDC, ARI and maternal care were good, they significantly improved as a direct result of social marketing efforts during the life of this project.

3. Administrative organization of the health services at all levels is a key ingredient to success. This is especially true at the point-of-service level. The first six years of project activities were spent training point-of-service personnel and developing the management capacity of district level people. However, major gains were made only in the last stage of the project where supervisory visits were able to focus on improved administrative organization at the health post and health center level. This included getting down to the detailed level about how the nurse auxiliary manages the clinical record when the patient arrives for care. This is also increasingly important as the focus shifts from child survival activities to integrated management of the sick child.

4. Successful program implementation is clearly linked to effective supervision. That includes problem analysis, in-service training and administrative achievements in a positive team approach. Helping health care workers to organize their services in a structured manner makes a big difference.

5. Joint planning, implementation and evaluation of program activities between project staff, MOH personnel and cormmmity counterparts is essential for successful achievement of objectives and sustainability. Wherever possible, NGOs also working in the area should be included in this planning.

6. Mass media has complemented project activities and contributed to successful achievement of objectives. Incidental reports indicate that lives have been saved by mothers'

early recognition of pneumonia and dehydration and earlier consultation with appropriate health services.

7. Feedback of information to the communities is a vital element to success. This project has developed committees for analysis of information at all levels, starting with the community, then moving to the health center and the district health level. The information has to be delivered in a technically-appropriate manner so that the communities understand it. Since community participation has been an essential ingredient to success in this project, the feedback of information and the adjustment of plans and programs based on this has been vital for success. It's also important to train community leaders in leadership issues, including decision-making, how to run meetings and how to use the information effectively.

8. The rapid survey evaluation technique relies exclusively on the existence of a *Road to Health* card for documenting EPI and growth monitoring activities. The large indigenous communities covered by this project have not maintained them well, and thus, coverage is artificially low. Adjustments need to be made in the evaluation methodology to allow for this artifact. For example, if we accept the mother's word on what treatment she gives for diarrhea, why can we not do the same thing for immunizations?

IV. PROJECT SUSTAINABILITY

A. COMMUNITY PARTICIPATION

The role of the community has evolved over the ten years of project life. The initial agreements with the community specified that they would provide a facility for the health worker in their community; they would constitute a community health committee, and they would nominate someone for training. A significant number of the communities also signed an agreement that they would provide some financial support to the health worker, either in the form of salary or in the form of other support, such as paying fee for services. About half of the original communities were expected to financially support the nurse auxiliary. A large number of communities nominated volunteer health promoters because there was not enough people to sustain a health center. These people participated voluntarily in the training and in the provision of health services thereafter. The communities, for the most part, lived up to their part of the agreement in provision of a site for health services, developing a community health committee, and in nominating people for training. About half of the original health posts and health centers were in community renovated buildings. The project often bought the materials, but the community provided the work.

However, the communities were generally not able to provide good financial support, and services declined where a government salary was not available. The project trained about half of the nurse auxiliaries still functioning. After that initial training program, the regional health services in Tarija began their own training program and the project no longer needed to do that. This is an example of good institutionalization of a project-initiated service. The materials used in this nurse auxiliary training program were developed from the project training materials.

The community health committees continue to function, reinforced in large part by the Law for Popular Participation described above. This law has taken money away from some departments of the MOH and given it directly to the local community. Since most of the communities where the project works have already established community health committees, they have become the basic government units that manage these funds. Thus, it appears they will continue to function for a much longer period of time because they now have adequate resources.

A much greater issue was financial sustainability of those auxiliaries who did not have a salary. Earlier project evaluations have shown that nurse auxiliaries with a salary provided two to three times the level of services of those without. Many of the communities recognized this disparity and prevailed upon the district health authorities to provide salaries to the nurse auxiliaries. Many community health worker salaries have ultimately been provided by the local communities themselves through the block grants they have received from the Law for Popular Participation. Thus at this time, 100% of the project area auxiliaries are working full time on government salaries. This has considerably facilitated the implementation of the program.

B. NGOs

The main counterpart in this project has been the Ministry of Health. NGOs did not play a major role. The sustainability of these project activities by the district level MOH offices are described in the section below. However, several NGOs have participated as partners in training activities. In the new project area of Entre Rios, there are two religious NGOs that work exclusively in Guarani Indian villages. They have assisted in the identification and training of TBAs. They have also established a residential house in Entre Rios so that pregnant women can come live in the house with their families for a period of time prior to their delivery, especially in high-risk pregnancies, so they can be very close to the hospital once labor begins. In Yacuiba, a cooperative organization of campesino groups has facilitated training of community health promoters in dispersed rural villages.

C. ABILITY AND WILLINGNESS OF COUNTERPART INSTITUTIONS TO SUSTAIN AC - AND THE SUSTAINABILITY PLAN

Figure III-50 shows a table indicating the degree of sustainability in each project zone.

FIGURE III-50

PROJECT SUSTAINABILITY

COMPONENT	SUSTAINABILITY BY ZONE		
	VILLA MONTES	YACUIBA	ENTRE RÍOS
. OPERATIVE PLANES			
A. DESIGN	80%	100%	100%
B. FOLLOW-UP	80%	80%	50%
. INFORMATION SYSTEMS			
A. COLLECTION	85%	90%	90%
B. ANALYSIS	85%	90%	90%
C. PRESENTATION	85%	90%	60%
D. UTILIZATION	80%	90%	60%
i. PERSONNEL TRAINING			
A. LESSON PLANS	80%	100%	50%
B. AUDIOVISUAL AIDS	80%	90%	50%
C. CLASS MANAGEMENT	80%	100%	50%
D. EVALUATION	80%	90%	50%
E. FINANCING	80%	90%	50%
1. PERSONNEL SUPERVISION			
A. PLANNING	80%	100%	60%
B. USE OF GUIDES	80%	90%	70%
C. ANALYSIS	80%	85%	60%
D. EVALUATION	80%	85%	60%
E. FINANCING	80%	80%	70%
5. MEETINGS WITH AIDS			
A. PLANNING	85%	100%	----
B. MANAGEMENT OF MEETING	85%	100%	----
C. FINANCING	85%	100%	----
6. TRAINING OF PROMOTERS			
A. LESSON PLANS	85%	100%	50%
B. AUDIOVISUAL AIDS	80%	100%	50%
C. CLASS MANAGEMENT	80%	100%	50%
D. EVALUATION	80%	90%	50%
E. FINANCING	80%	90%	50%
7. SUPERVISION PROMOTERS			
A. PLANNING	80%	90%	60%
B. MANAGEMENT OF MEETING	80%	90%	60%
C. FINANCING	80%	90%	60%

Source: "Self-evaluation" MOH Villa Montes, Yacuiba and registered information: Esperanza, Entre Ri

This activity was undertaken as a part of this evaluation. Project team members met with district health office staff in each zone of the project and ranked each management area on a scale of one to ten -- one being not sustainable and ten being 100% sustainable. Approximately 8-10 people participated in this ranking in each project zone, and the results reflect the cumulative responses. It's very clear that the older project zones which have been in existence 9-10 years have achieved 80% or greater sustainability in all management areas. However, the newer project zone is only 50-60% sustainable after four years. This is clearly an important lesson learned in this project: sustainability requires a lo-year period. Even though considerable experience is gained in improving the coverage of primary health care services, the management supports that are required to sustain them take a much longer period of time to acquire. Even within the older project zones, Yacuiba is more urban and less dispersed than Villa Montes, and this makes it easier to sustain the project activities and the ranking is higher in that zone. This is another given -- the more closely-located health services are to headquarters, the easier they are to sustain.

In Entre Rios, project support of activities has ceased after four years. The district health office is acutely aware that no further supports will be forthcoming and has requested during this evaluation that additional technical assistance be provided. The results of this sustainability analysis suggest that an additional two to three years of limited technical assistance provided to Entre Rios would achieve greater sustainability; *thus the Recommendations* section will address the fact that USAID should consider providing additional support to Esperança for limited technical assistance to Entre Rios over the next two to three years to achieve a greater level of sustainability.

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

1. This child survival project has achieved the vast majority of its goals and objectives. We would rank it in the superior category for similar child survival projects. Significant advances have been made in the use of appropriate services for diarrhea1 disease control, the knowledge of mothers about dehydration, the use of appropriate health services in pneumonia, the mother knowing the signs of pneumonia, marked improvements in the percentage of children registered in growth monitoring and who have been weighed in the past four months. There has also been significant advance in exclusive breastfeeding for six months, and early lactation just after birth. However, prolonged lactation greater than 12 months clearly needs some work. Two doses of Vitamin A in children between 12-24 months has improved. Significant

improvements in rates of malnutrition and inadequate growth have occurred during the life of this project. This is unusual for pure child survival projects without a supplemental feeding program. The most marked achievement is improvement in the number of women getting two or more prenatal visits, as well as the number of women having deliveries through trained birth attendants.

2. More work needs to be done in the area of immunization coverage. The new project area in Entre Rios still needs additional work on completing three doses of vaccines -- there's a significant drop-off between the first and third doses of DPT and polio, as well as in completing the series. Much of the low apparent coverage in EPI in the new project area appears to be due to the loss of the immunization card -- the Johns Hopkins survey technique only allows noting immunizations if the card is available in the home. The high percentage of indigenous Aymara Indian people in the new project zone who do not speak Spanish and who are not familiar with the use of the card may mean the survey will show artificially low coverage rates. More work needs to be done in educating mothers in knowledge of Vitamin A-rich foods; although the percentage of mothers who give Vitamin A-rich foods to their children has significantly increased, they don't seem to be able to identify the reasons why they are giving that food.

3. This impressive achievement in project activities is due to several factors:

(a) The use of social investigation and social marketing techniques that has stimulated changes in both health care worker training programs and in information, education and communication programs. Project staff have been very flexible in adapting to the results of their social investigation.

(b) Completion of training and supervisory objectives established for the project in a flexible manner for all levels of health care workers has been successfully linked to project success. The willingness to train traditional healers, traditional birth attendants and a small army of village-level volunteer health promoters has also contributed to success.

(c) Better organization of services at the health center and health post levels. District level management changes are not enough; these changes have to be felt at the point-of-service.

(d) Continuity of project staff who have been working in the project for approximately ten years has allowed institutional learning to continue in a setting where frequent political changes in the MOH services are the norm. The lessons learned have been translated into positive changes over time.

(e) The government of Bolivia has made major investments in rural health services in the last four years in several ways:

(1) construction and equipping of health posts, health centers and area hospitals

where none existed before;

(2) the Law for Popular Participation that began implementation in July 1996 has put fiscal resources in the hands of local community governments who respond to local needs;

(3) the commitment of local communities to make this work; now that they have the resources and the political clout to make changes, they are actively participating in the health services in a way far beyond the expectations of the original project;

(4) commitment of the national health service to make this work by assigning personnel time and other resources.

4. Sustainability has occurred at the 80-90% level in the older project zones where services have been active for nine and ten years. However, in the new project zone of Entre Rios, where service has only been active for four years, sustainability is only at the 50-60 % level, even though good gains have been made in coverage of project services. The experience gained early on in the project has contributed to improved coverage, but sustainability in an entirely new zone takes more years than originally envisioned.

B . RECOMMENDATIONS

1. The EPI program still needs additional work in:

(a) educating mothers to maintain their immunization card in the home;

(b) decreasing the drop-off between first and third doses of oral polio and DPT;

(c) increasing measles coverage -- the norm was recently changed to give measles between 12-15 months, and more effort needs to be made to reach this age group;

(d) increasing the coverage of two doses of tetanus toxoid for women.

2. Oral rehydration therapy has significantly increased, but there is a cultural barrier to continuing feeding during diarrhea. Education programs need to focus on this aspect of oral rehydration, since ORT equals ORS plus feeding.

3. In ARI programs, Entre Rios has shown growth in attaining the objective but still needs more work to significantly increase coverage. Training of health promoters and application of antibiotics in rural communities that don't have a health post and are very isolated during the rainy season may help achieve this.

4. In Vitamin A coverage, more education needs to be directed towards the mother so she knows Vitamin A-rich foods and the value of Vitamin A to her child; emphasis needs to be placed on increasing the coverage of two doses of Vitamin A capsules between 12-24 months.

5. In the area of maternal care, there's been excellent growth in pre-natal care in the number of women getting two or more pre-natal visits prior to delivery and the number of women who are attaining deliveries in a setting with trained health workers. However, this

trend needs to continue until the full objectives of over 80% of pregnancies receiving this care are met. This is especially true in the newer project area. Social marketing and mass media programs directed towards these objectives need to continue.

6. The district hospital in Entre Rios needs to improve equipment and services to better function as a referral center. Even after four years, they're still not able to do caesarean sections, nor do they have x-ray equipment to serve as the referral source for tuberculosis. We were told by district level health personnel that there are plans for improvements to this hospital in 1997/98 fiscal year, and, hopefully, this problem will be addressed in the near future.

7. Expansion of services to the new area in Camargo needs to keep these lessons learned foremost in project development activities. Even with 10 years of experience in previous child survival areas, it will still take many years to get sustainable activities in a totally new district.

8. Entre Rios could still use some technical assistance, especially in training and administrative improvements over the next two to three years to achieve full sustainability found in other project zones.

9. The results are so favorable they deserve publication to a wider audience in scientific journals. Some assistance can be provided to the project team in this.

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